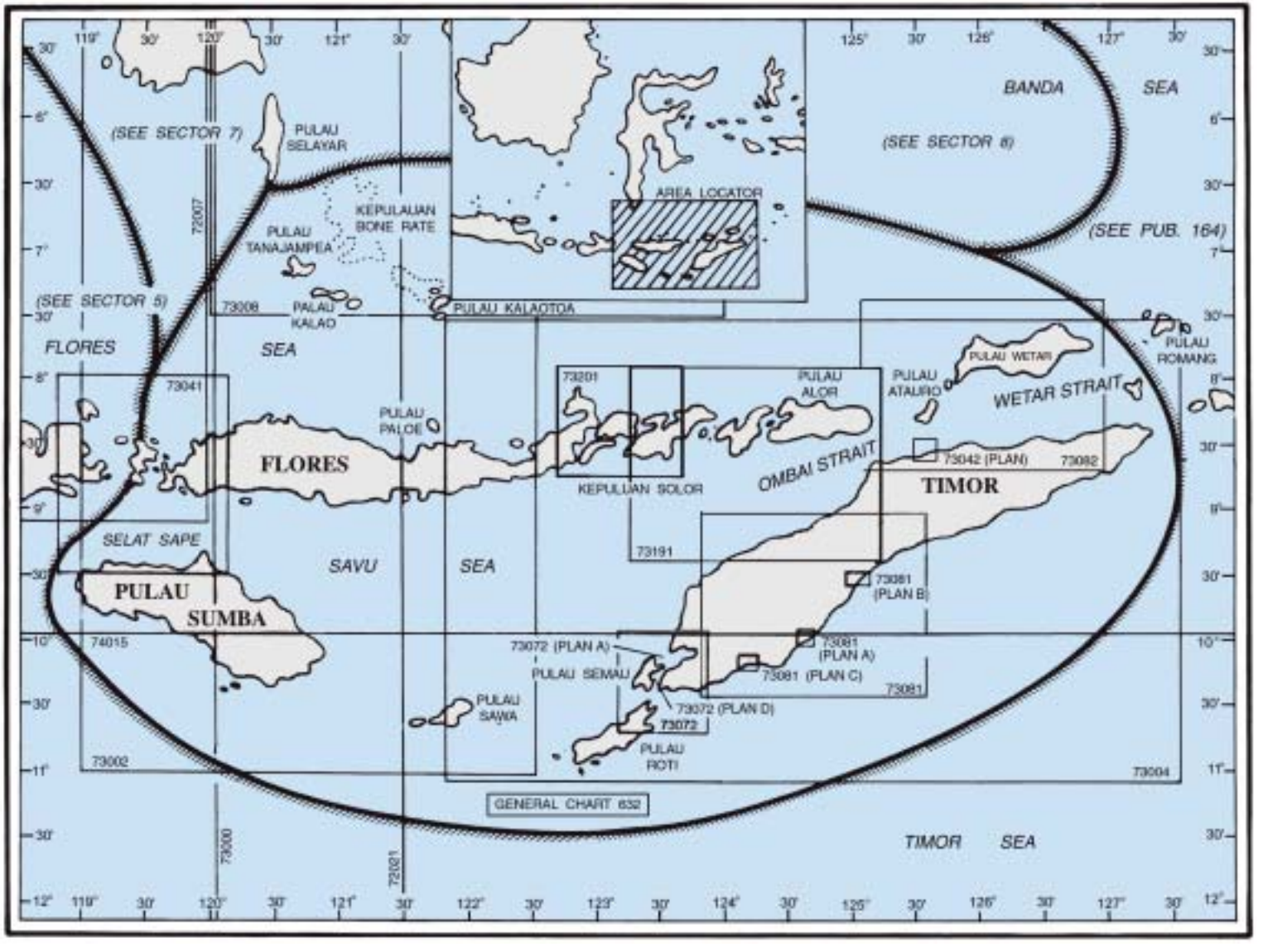
Click on "See Sector" to be hotlinked to that Sector.



Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

SECTOR **6** — CHART INFORMATION

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SECTOR 6

NUSA TENGGARA

Plan.—This sector describes Pulau Sumba, Flores, Pulau Lomblen, Kepulauan Alor, Timor, and Pulau Wetar together with the adjacent islands and straits. The descriptive sequence is from W to E. Pulau Tana Jampea, Kepulauan Macan, and adjacent islands which lie N of the central and E parts of Flores are described in an E to W direction.

General Remarks

6.1 Nusa Tenggara, previously known as the Lesser Sunda Islands, extend about 750 miles E from Jawa to Timor. The principal islands of the chain described in this sector consist of Flores, Pulau Solor, Pulau Lomblen, Pulau Pantar, and Pulau Alor plus their dependent islets. The islands of Pulau Sumba, Pulau Sawu, Pulau Roti, and Timor lie S of the chain but are an integral part of the Lesser Sunda Group.

The primary physical feature of the principal chain of islands is a line of volcanic ridges running from end to end. The W end of the chain has the highest elevations with lesser elevations along the E end of the chain. Pulau Sumba, Pulau Sawu, and Pulau Roti are off the main volcanic line. The island of Timor, differing considerably in physical aspect from the rest of the group, is traversed by a series of mountains seldom rising higher than 1,829 to 2,134m.

Selat Linta, between Pulau Komodo and Pulau Rintja, is seldom used. Selat Molo, between the latter island and Flores, is navigable only by small craft because of the currents in its narrowest part. Selat Flores, at the E end of Flores, is deep and clear.

The islands which lie between Flores and the S end of Sulawesi to the N, and which are described in this sector have no ports of importance and are usually only frequented by small inter-island coasters. Exposed anchorage is provided in the vicinity of some of these islands.

Winds—Weather.—The general characteristics of the weather, which prevails in the area covered by this sector, have been previously described in paragraph 5.1. The climate of Pulau Sumba is pleasant with temperatures averaging between 26˚C and 32˚C. Flores has a dry climate.

Tides—Currents.—In the Flores Sea the currents generally set with the wind, W during the Southeast Monsoon and E during the Northwest Monsoon. Both of these currents are, on the average, stronger than those in the Java Sea, with the E current somewhat stronger than the W current. Maximum rates of 2.5 knots or more, have been recorded.

The tidal currents in the straits will be discussed along with a general description of the straits.

6.2 **Pulau Sumba** (9˚40'S., 120˚00'E.) lies 35 miles SE of Pulau Sumbawa. Except for its S side, the island is generally low along the coast and mountainous farther inland. In the N central part the island rises to a height of almost 914m, and in the SE part the elevation is a little over 1,219m. Volcanic activity has never been observed.

The central and E parts of Pulau Sumba are almost all bare tableland, cut by rocky ravines. The W part of the island is hillier and has more vegetation.

The numerous rivers consist of shallow streams of no navigational importance. In the river valleys of central Pulau Sumba, there are a few small villages situated at great distances from each other.

The only useful landmark on the N shore is the 445m projection of high land that terminates in Tanjung Sasar.

Visible landmarks along the S shore are the mountains just N of the S extremity of the island, especially the highest point, located 18 miles NW of the southernmost point.

The mountains have been reported to be identifiable by radar at 12 miles.

Winds—Weather.—The climate of Pulau Sumba is very healthful and there is little sickness reported among the inhabitants.

The average daytime temperature is in the 26˚ to 32˚C range. November is the hottest month, with the temperature frequently reaching 35˚C. From mid-June to August, the nights are cool and the temperature seldom exceeds 15˚C.

The average rainfall is 800mm. The wettest months are January and February, with a total of 240mm. During the Northwest Monsoon, in February, the rivers become swollen.

From June to October, it seldom rains near **Waingapu** (9˚38'S., 120˚16'E.), on the N coast, and the land in this district becomes dry and withered.

Tides—Currents.—The direction of the current depends on the monsoons. From April to October, the current is W and from December to March, it is E. In November the currents are generally SE or SW.

Depths—Limitations.—The 200m curve lies about 3.5 miles off the N coast of Pulau Sumba, broadening to 6.5 miles off the E end, and 9 miles off the S part (but only 1.5 miles off the outlying islands along this part). From there to Tanjung Karosso, the curve lies about 4.5 miles from the shore. All dangers are contained within the 200m curve. Selat Sumba is deep and clear.

Pulau Sumba—North Coast

6.3 **Tanjung Karosso** (9˚33'S., 118˚56'E.), the W extremity of Pulau Sumba, is low, sandy, and fringed by a narrow drying reef. The coast extends 65 miles ENE to Tanjung Sasar. Between Tanjung Karosso and Teluk Waikalo, about 21 miles NE, the hinterland appears as a horizontal ridge sloping to the W. The only landmark along this section of coast is the dark forest located E of Tanjung Karosso on a higher ridge. Sandy beaches are found in places along this section of coast.

A village and a noticeable sandy beach are located about 4 miles NNE of Tanjung Karosso.

Tanjung Suma (9˚26'S., 119˚02'E.), 10 miles NE of Tanjung Karosso, barely projects from the coast, but may be recognized by two houses rising over a ridge just behind the beach.

Anchorage may be taken, with local knowledge, in a depth of 27m, sand and coral, with the E house in range 156° and a coconut palm on the beach N of Tanjung Suma.

A current up to 1.5 knots has been observed off the village.

Teluk Waikelo (9°22'S., 119°14'E.), a small bay, is located 12 miles ENE of Tanjung Suma. A mountain, 5.75 miles S of the bay head, is easily recognized by its saddle shape. A shed with an iron roof stands on the offshore side of the light in Teluk Waikelo, and a mosque stands about 0.25 mile E of the light structure. The light is shown only when a vessel is expected.

Anchorage, reported to be safe during the Southeast Monsoon, can be taken in Teluk Waikelo in a depth of 52m, with the light bearing 161° and the points on the E side of the bay in range, bearing 066°. A moderate current may be found off the bay, but none inside.

Tanjung Nanga Amba (9°21'S., 119°18'E.), low and wooded, lies 5 miles E of Teluk Waikelo. The coast between Tanjung Nanga Amba and Tanjung Karendi, a low sandy point 7 miles E, is fronted by mangroves and sandy beaches.

Tanjung Batoembaba, a low rocky point 4 miles E of **Tanjung Karendi** (9°22'S., 119°25'E.), and the low sandy Tanjung Laramampa, 5.5 miles farther E, are the E and W entrance points of a bight with the village of Memboro at its head. A conspicuous white sandy beach lies along the E side of the bight.

Tanjung Wanda (Tanjung Terapa) (9°21'S., 119°38'E.), about 4 miles ENE of Tanjung Laramampa, is rocky and covered with vegetation, but is not high. The point is hollowed out below the high water line. A sandy beach lies between this point and Tanjung Palmedo, about 8 miles ESE. This latter point is the rocky spur of a plateau, bordering the valley of a stream with the village of Palmedo on its E bank.

Lena (Palindi Mutu), a wooded peak 396m high, stands 4 miles S of Palmedo. It can be seen from offshore when off the coast between Tanjung Terapa and Tanjung Sasar, about 12 miles NE. A 622m peak, about 5.5 miles WSW of Lena, can also be seen along this section of coast. The peak is the W end of a ridge which slopes to a plateau farther W.

Anchorage can be taken off the village of Palmedo in a depth of 29m, sand and stone. The village should be in range, bearing 165°, with the first steep part of the coast W of the mouth of the river. A 2.5 knot current is sometimes felt at this anchorage.

Tanjung Wainde (Tanjung Ratuwolu) (9°21'S., 119°51'E.), 5 miles ENE of Tanjung Palmedo, is composed of steep, but not high, white colored rocks. A conspicuous broad-topped tree stands on the coastal reef at the point.

Tanjung Sasar (9°17'S., 119°56'E.), the N point of Pulau Sumba, is a spur of the mountain plateau to the south. Tanjung Sasar Light stands at a height of 85m on the point. Slides on the W side of the point have produced vertical walls 30 to 39m high. The current around the point is strong at times.

Pulau Sumba—Northeast Coast

6.4 The NE Coast of Pulau Sumba has no marks for offshore navigation, except for the projecting **Tanjung Ngaroe Roehoe** (Tanjung Laundi) (9°28'S., 120°12'E.) and **Tanjung Batuatu** (9°37'S., 120°29'E.). With the exception of a few rocky parts, the coast is predominantly sandy beach fronting a plain with high trees. Behind the wooded section are terraced hills with grassy plains.

From Tanjung Sasar, the coast extends 18.5 miles SE to Tanjung Ngaroe Roehoe. Midway along this section of coast lies the mouth of the Sungai Kadessa. About 2.5 miles upstream, the river flows through a cleft in the rocks which is visible from seaward.

The shore of this coastal stretch is fringed by a narrow, drying reef broken only at the mouths of two existing rivers, 7 miles apart, by drying sand flats. Depths within the 200m curve are very irregular and anchoring is not recommended.

Tanjung Ngaroe Roehoe, lying 18.5 miles SE of Tanjung Sasar, is a low point backed close inland by a hill, 130m high. This hill is the N end of a steep, crumbling limestone wall forming the edge of a plateau. A very strong current, sometimes causing eddies, sets around this point.

Teluk Nangamesi (Nangamesi Bay) (9°37'S., 120°20'E.) is entered between Tanjung Ngaroe Roehoe and Tanjung Batuata, a sandy point covered with vegetation, 19 miles SE. A small projection divides the head of the bay into two parts, with **Waingapu Road** (9°38'S., 120°15.5'E.) lying to the W and Teluk Kambaniru to the E. Kali Kambera, the largest of several streams, flows into the head of Teluk Kambaniru. Waingapu Road is the principal shipping place on Pulau Sumba.

The 200m curve lies up to 1.25 miles off the W side of Teluk Nangamesi and up to 3.25 miles off the S side. Depths throughout the entire area are irregular. A steep-to, drying reef fringes the S side of the bay up to 0.5 mile offshore and extends up to the same distance off the head of the bay in Waingapu Road. The fringing reef on the W side of the bay is narrow. The only dangers in Teluk Nangamesi exist in Waingapu Road. Strong currents exist off the approaches to the bay but are barely perceptible within its limits.

Between Tanjung Laundi and Tanjung Mandulung, about 4.5 miles SSE, the shore on the W side of the bay is rocky and bordered by sandy beaches. Between Tanjung Mandulung and the village of **Utaleumbu** (9°35'S., 120°14'E.), the sandy shore is bordered by mangroves.

The sudden change from mangroves to sandy beach at the otherwise inconspicuous Utaleumbu provides a good landmark. Anchorage can be taken off the sandy beach S of the village, in depths of 35 to 46m, sand and coral. A prominent white patch is visible on the face of the outer end of the tableland behind Utaleumba.

Between Tanjung Batuata and Tanjung Djumbu, about 4.5 miles WSW, the low sandy shore is backed by trees. Between this latter point and Waingapu Road the muddy shore is marked by mangroves.

Waingapu Road, at the head of Teluk Nangamesi, is the general area between **Tanjung Tai Manuk** (9°37'S., 120°15'E.), 2.5 miles S of the village of Utaleumbu, and **Tanjung Atu** (9°38'S., 120°16'E.), about 1.3 miles farther SSE.

6.5 **Waingapu** (9°38'S., 120°16'E.) (World Port Index No. 51350) is the only town on Pulau Sumba and is the administrative center for the island. A stone pier fronting the village has a depth of 2.1m alongside. A flagstaff stands at the inner end of this pier. A light is shown from a white framework tower at Waingapu. There are lighted beacons and leading

marks. Several lighters are available for working cargo at the anchorages.

Tides—Currents.—The tides at Waingapu are mixed, but predominantly semidiurnal. Spring tides rise 2.5m and neaps rise 0.8m.

Depths—Limitations.—A 2.7m reef, marked by a beacon, lies 0.3 mile E of Tanjung Tai Manuk. A detached, 1.8m, sunken rock lies 0.15 mile NNW of the beacon and a 9m coral head, unmarked by discoloration, lies 0.2 mile E of the beacon.

A drying reef extends 0.32 mile N from Tanjung Atu; a detached 0.9m patch lies close N of its N end. A drying reef, which forms the W side of the inner road, extends 0.25 mile from the shore S of Tanjung Tai Manuk.

A 274m wide swept channel leads into the inner road between the drying reefs. Depths range from 11 to 32m. Both arms, which make up the inner road, have depths of 12m or more.

Aspect.—Two white stone beacons in range, bearing 188°, lead down the centerline of the swept channel and into the inner road. An oil tanker facility has been reported (1994) to be situated here.

Anchorage.—The best anchorage lies just within the entrance of the inner road in a depth of 28m, mud and sand, 0.32 mile WNW of Tanjung Atu. Small vessels can anchor closer in at the entrance of either arm of the inner road in a depth of 22m. The W arm has more room but the bottom is hard, whereas, the bottom in the E arm is stiff mud. An embedded anchor on the N end of the reef, between the two arms, can be used as a bollard.

6.6 Teluk Kambaniru is entered between **Tanjung Pasia Manuk** (9°39'S., 120°19'E.) and Tanjung Sudu, 3 miles to the E. Kali Kambera, the principal river of Pulau Sumba, enters the head of this bay but its mouth is fouled by drying sandbars. Depths in Teluk Kambaniru are irregular, but anchorage can be taken off the river mouth in a depth of about 45.7m.

The coast between **Tanjung Batuata** (9°37'S., 120°29'E.), 6.5 miles ENE of Tanjung Sudu, and Melolo Village, about 20 miles SE, consists of an unbroken sandy beach backed by high land a short distance inland. Anchorage can be taken anywhere along this coast between Tanjung Batuata and Melolo Village.

Tanjung Tuak (9°43'S., 120°36'E.), 10.5 miles SE of Tanjung Batuata, is a flat point covered with grass and has two groups of coconut palms.

Tanjung Petawang (9°48'S., 120°38'E.), 4.25 miles farther SSE, is wooded and fairly prominent. The village of Petawang stands in the trees, 0.5 mile SSW of the point.

Melolo Road (9°53'S., 120°40'E.), with Melolo Village along the shore, lies 6 miles SSE of Tanjung Petawang. A mosque and a long house, with a zinc roof, in the village are visible from the roadstead.

Anchorage.—Anchorage can be taken in a depth of 33m, mud and sand, NE of the mosque. It is not advisable to anchor close in because the bottom rises very steeply near the coastal reef which extends up to 0.25 mile offshore.

The coast between Melolo Village and Tanjung Undu, about 17.5 miles SE, continues sandy as far as Tanjung Rendi, about 2 miles SE of Melolo Village, and then changes to a muddy coast bordered by mangroves.

There are reports of no suitable anchorage being provided along this section of coast because of the steep bottom.

Caution.—It has been reported (1994) that the village, mosque, and long house are not visible.

6.7 **Tanjung Wara Djangga** (9°55'S., 120°45'E.), about 5.75 miles SE of Melolo Village, is wooded and inconspicuous. There are occasional fishing huts along the coast, with small craft lying off the coast in a small bight midway along this stretch. Tanjung Tapi (Tanjung Tapil), 2.5 miles SE of Tanjung Wara Djangga, is a rocky, wooded point with rocks on the coastal reef fronting it.

A village, about 4 miles SE of Tanjung Tapi, is inhabited by fishermen; the high roofs of some houses can be sighted.

Tanjung Undu (Tanjung Oendoe) (10°05'S., 120°51'E.), which lies 9 miles SSE of Tanjung Tapi, is the E extremity of Pulau Sumba. This low sandy point has the mouth of a river on its N side which is entered by small craft at high water. Tanjung Undu Light stands at a height of 42m on the point.

A coral ridge runs parallel with the coast, 2.75 miles E of Tanjung Undu, for a distance of 5 miles. With the exception of a 6m patch, 3.5 miles NE of the point, which is only slightly marked by discoloration, there are depths of 10.3 to 11.9m over this ridge.

Anchorage may be taken in both monsoons from between the ridge and the coastal reef, in depths of about 20 to 29m.

Caution.—Wrecks lie 5 miles N and 3.5 miles NNE of the light; an underwater rock lies 5.5 miles NNE of the Tanjung Undu Light.

Pulau Sumba—Southeast Coast

6.8 The coast between Tanjung Undu and Tanjung Ngunju (Tanjung Ngoendjoe), about 28 miles WSW, consists of a coastal reef extending up to nearly 0.75 mile offshore, broken in a few places by sandy beaches.

Extensive grass-covered, sparsely wooded, plains lie behind the beaches. The terraced interior is fronted along its seaward side by high cliffs. With the exception of the land in the vicinity of Tanjung Ngunju, there are no distinctive features along this section of coast.

There are no completely sheltered anchorages along this coast, but some protection from the sea may be obtained in the bights E of Tanjung Warumanggit and E of Tanjung Watuparonu. There is, however, no shelter from the Southeast Monsoon, which may blow in with considerable force, especially in May and June. During these months the local coastal trade, which is fairly considerable, is suspended.

Shelter may be obtained during the Northwest Monsoon, but a SW swell can be occasionally troublesome. Shelter is provided SW of **Tanjung Watuparonu** (10°15'S., 120°31'E.), and to a lesser degree, off the entrance of the Luku Waikoka, 1.5 miles NE and E of **Tanjung Warumanggit** (10°15'S., 120°37'E.).

Tanjung Waradjangga (Tanjung Nangu Wara) (10°14'S., 120°41'E.) is low, flat, bare, and rocky. A coral reef lies about 1 mile S of the point and extends about 1.25 miles to the NE and parallel to the coast. The reef has general depths of 6.7m or more and a least depth of 2.1m near its center. At times the reef is plainly marked by discoloration but at other times the whole area is discolored by river water. With a heavy swell, the sea

often breaks over the shoal part of the reef. A shorter coral reef, with a least depth of 7.9m, lies about 1 mile W.

Tanjung Warumanggit (Tanjung Ngaru Mangeh) (10˚15'S., 120˚37'E.), which lies 4 miles WSW of Tanjung Waradjangga, provides partially protected anchorage during the Northwest Monsoon in the 3 mile wide bight on its E side. A landing place is located at an indentation lying at the W end of a drying coastal reef projecting 0.75 mile from the shore in the vicinity of Tanjung Warumanggit. Heavy SW swells break on both sides of this indentation.

6.9 **Tanjung Watuparonu** (Tanjung Watu Perono) (10˚15'S., 120˚31'E.) is a small projection at the head of the wide bight between Tanjung Warumanggit and Tanjung Ngunju. Tanjung Watuparonu is conspicuous for its white cliffs and its low, fairly level hills marked by tall reeds and a few groves. These hills are joined to the higher land to the NW by a somewhat lower ridge. These cliffs, which are first seen at Tanjung Watuparonu, extend an additional 2 miles to the W.

Vessels anchor, with some protection, in the bights on either side of Tanjung Watuparonu according to the wind. The E bight is clear and slopes evenly but the W bight is fouled by coral reefs which break at LW. Two reefs, with depths of 3m and 4.9m, lie 2 miles S of Tanjung Watuparonu just within the 20m curve. An 8.5m patch lies 1 mile SE of the same point.

Tanjung Ngunju (Tanjung Ngoendjoe) (10˚19'S., 120˚27'E.), the S extremity of Pulau Sumba, consists of a mountain spur ending in a prominent steep cape with a 46m high hill on its outer end. A group of high white rocks stand close E of the neck of the cape, which partly covers at HW. The mountain spur rises 1.25 miles N of the cape to an elevation of 473m.

The currents must be taken into account when rounding Tanjung Ngunju, eddies and rotary currents have been observed close S of the point.

Pulau Sumba—Southwest Coast

6.10 For passing vessels, the rather conspicuous hilltop and the off-lying islands of the coastal area SE of **Tanjung Malanggu** (10˚07'S., 120˚01'E.) provide good landmarks. The coastal hills to the NW of this point present no prominent features as far W as the W end of Pulau Sumba. The land in the interior, although rising to heights of almost 914m, remains fairly regular with no prominent outstanding ridges or peaks.

Although the depths provide anchorage almost anywhere along the coast to vessels with local knowledge, they are not completely protected from the continual heavy swell.

The current generally sets parallel with the coast with the prevailing monsoon at a maximum rate of 1.5 knots.

Pulau Halura, Pulau Kotak, and Pulau Mangkudu are a group of three islands which lie from 3 to 6.5 miles offshore midway between Tanjung Ngunju and Tanjung Malanggu, about 29 miles WNW. The first two islands mentioned are joined by a drying reef. All of the islands are uninhabited.

Pulau Halura (Lahalura) (10˚19'S., 120˚12'E.), the easternmost and largest of the off-lying islands, lies about 14.5 miles W of Tanjung Ngunju. This rocky island is covered with reeds and palm trees and rises to a height of 318m near its E end.

A reef extends 0.5 mile from the S and W shores of the island, with a prominent pillar rock 0.2 mile S of its W extremity. The reef breaks heavily.

Pulau Kotak (10˚19'S., 120˚10'E.), which stands on the W edge of Pulau Halura's drying reef, is a 66m high dome with sunken rocks close off its NW side.

Pulau Mangkudu (Pulau Mangoedoe) (10˚20'S., 120˚07'E.), 2.75 miles W of Pulau Halura, is fairly low and has a sandy beach on all sides. A drying reef, which breaks heavily, fringes the S and W sides of Pulau Mangkudu. A light is shown from the SSW end of the island.

Eddies and weak rotary currents have been observed around these islands. A strong current frequently runs between Pulau Mangkudu and the W end of Pulau Halura's fringing reef.

6.11 From Tanjung Ngunju, the coast extends about 29 miles NW to Tanjung Malanggu. Tanjung Karera (Tanjung Woenoe), 10 miles WNW of Tanjung Ngunju, is rocky and steep and fronted by two high rocks which stand close offshore.

Tanjung Lawitu (Tanjung Lewitu) (10˚10'S., 120˚05'E.), which consists of red rock and is sparsely wooded. Two adjacent hills, 72m and 192m high, rise close behind the point.

The coast between Tanjung Lawitu and Tanjung Melangu is mostly bare and rises gradually from the shore where a continuous surf breaks.

Tanjung Melangu (Tanjung Malanggu) (10˚07'S., 120˚01'E.), with a ridge behind it, is one of the best landmarks for navigation along this coast. The point consists of rock connected by a narrow crest to the dark rocky land behind it, which rises steeply to an elevation of almost 488m.

Between Tanjung Melangu and Tanjung Laikameni, about 30.5 miles WNW, the mountains provide no landmarks except for an occasional coastal hill. The 335m hill, 6.25 miles N of Tanjung Malanggu, has an almost bare top.

Tanjung Laparoeno (Tanjung Watuparunu) (10˚00'S., 119˚57'E.) is fronted by three sharp pillar rocks close offshore. The needle-shaped rock of the group is conspicuous.

Teluk Malikaba (9˚58'S., 119˚57'E.) and Teluk Mambang (Lamombang Bay), two bays entered about 1 and 4 miles NW of Tanjung Laparoeno, provide the best anchorage on the SW coast of Pulau Sumba. In the Southeast Monsoon, protected anchorage can be taken on the SE sides of both bays which are sheltered by the fringing reefs. In the Northwest Monsoon, calm anchorage can sometimes be taken in Teluk Malikaba.

The coast between the above bays consists of steep, moderately high limestone hills fronted in places by sandy beaches and an occasional white cliff.

Depths—Limitations.—Depths within both bays are about 10m or more. The 10m curve lies close off the head of Teluk Malikaba, but lies 0.3 mile off the head of Teluk Mambang. A depth of 4.9m lies a little more than 0.5 mile W of the E entrance point of Teluk Mambang. Depths of less than 10m extend 0.3 mile NW from this patch.

Directions.—To enter Teluk Malikaba, steer 038˚ for the 506m hill, 4 miles NE of the bay. A conspicuous tree stands on this round hill. To enter Teluk Mambang, favor the W side of the bay to avoid the 4.9m shoal off the E entrance point.

6.12 **Teluk Kakadu** (9˚56'S., 119˚57'E.), an open bay with moderate depths, lies 1.5 miles NW of Teluk Mambang. The S entrance point consists of bare rock with a flat rock close W of it. Anchorage is not advisable within the bay because of the poor protection.

Tanjung Nonguwawi (Tanjung Ngungu Wawi) (9˚55'S., 119˚47'E.) is 204m high and has a T-shaped peninsula extending a short distance S. A bight, partially protected from the W by a series of islets and rocks extending seaward, lies on the W side of the point. In favorable weather, vessels can anchor on either side of the outer rock in a depth of 27.4m.

Watu Sipu (9˚51'S., 119˚42'E.), a wooded islet, 90m high, lies 7 miles NW of Tanjung Nonguwawi and is joined to the mainland by a drying reef. Tanjung Lamarongi (Tanjung Marongi), 2 miles farther NW, is a fairly steep, rocky point covered with tall grass.

Teluk Lasipu (Sipu Bay) (9˚48'S., 119˚40'E.) is entered between Tanjung Lamarongi and the low, sandy Tanjung (Lahikememe) Laikameni, 3.75 miles NW. The bay has moderate depths, especially in its N part, and is clear of dangers except close off its shores. Some protection is provided in the Northwest Monsoon. A black, almost perpendicular cliff, which stands along the middle part of the E shore is conspicuous.

Teluk Sendikari (9˚47'S., 119˚37'E.) is entered between Tanjung Laikameni and **Tanjung Ta Atu** (9˚47'S., 119˚36'E.), 2 miles NW. The higher outer end of the latter point is flat and bare except for a few trees.

Depths within the bay decrease gradually toward the shore, but above and below-water rocks extend up to 0.25 mile off both sides. A detached 6.7m patch lies about 0.75 mile SE of Tanjung Ta Atu.

The holding ground in Teluk Sendikari is good, but no protection is provided from the SW swell.

Between Tanjung Ta Atu and **Tanjung Mambang** (9˚45'S., 119˚11'E.), about 24.5 miles W, the coast is free from dangers about 1 mile offshore and may be approached closely. The swell breaks continuously on the coastal reef and the line of breakers is visible at night.

The coast between Tanjung Ta Atu and Tanjung Meloku, about 3.75 miles W, is indented by two small coves. A high islet with a conspicuous cone of rocks stands on the E side of the E cove, but is not visible from all directions. A dark rock with a flat top lies at the W entrance of the W cove and is conspicuous from the W. Another small cove lies 2 miles W of Tanjung Meloku.

6.13 **Tanjung Rua** (9˚48'S., 119˚28'E.), which lies 7.5 miles WSW of Tanjung Meloku, is the S end of a short blunt peninsula. Fair anchorage is provided in the bight between the points because of the moderate swell.

Vessels anchor in a depth of 18m off a small stream flowing into the head of the bay. A few pointed roofs projected above the tree tops are the only parts of the houses of the villages which stand on the hills behind the peninsula, which can be seen from seaward.

Tanjung Watubolo (Tanjung Watoembolo) (9˚46'S., 119˚20'E.), the S end of a fairly low, broad spur of the hills behind it, lies 5 miles WNW of Tanjung Rua.

Tanjung Mamba (Tanjung Mambang) (9˚45'S., 119˚11'E.), 8 miles W of Tanjung Watubolo, is the steep S side of a conspicuous short peninsula, almost bare of vegetation, which slopes gradually to the sea.

Some large rocks are reported to lie on the coastal reef close off the point.

Tanjung Waibuku (9˚40'S., 119˚02'E.), lying 11.5 miles NW of Tanjung Mamba, is a prominent point rising steeply from the sea to a bare, flat summit. The sandy coast between this latter point and **Tanjung Waiselai** (9˚37'S., 119˚00'E.), 3 miles to the NW, is densely wooded.

Several small villages stand among the trees between Tanjung Waiselai and **Tanjung Karosso** (9˚34'S., 118˚55'E.), about 5 miles to the NW.

When approaching Tanjung Karosso from the W, the summit of a mountain 735m high, about 24 miles E will be seen as a half-sphere rising above the long uniform ridge which descends gradually towards the sea. On closer approach, the low, sandy, wooded point of Tanjung Karosso can be identified together with the dark wood on a ridge of hills, 2.5 miles E.

Anchorage.—Anchorage can be taken, by vessels with local knowledge, in depths of 20 to 27m, sand, with the S extremity of the rocky N entrance point of the stream in range, bearing 065˚ with the N house in the village close N of Tanjung Waiselai. On this bearing, the S extremity of the entrance of the stream appears as a detached rock. It is not advisable to anchor closer in because of the S swell.

The tidal current in the road sets parallel with the coast at a rate of 0.75 knot.

Islands and Straits between Pulau Komodo and Flores

6.14 Pulau Rinca, between Pulau Komodo and Flores, is similar in appearance to Pulau Komodo and is also uninhabited except for a village on the NE extremity. The island is mountainous and densely wooded over most of its area. Doro Radja, in the island's NE part, is 351m high and prominent when viewed from the N or S.

Tides—Currents.—Selat Lintah, between Pulau Komodo and Pulau Rinca, is little or never used because of strong, little known currents. Three main channels lead among the islands N of Pulau Rinca into the S and wider part of the strait.

Selat Molo, between Pulau Rinca and Flores, is navigable only by small craft because of the strong currents in its narrowest part.

The tidal currents in the N approach to Selat Lintah divide into two parts, one part setting W along the N coast of Pulau Komodo and the other E along the N coast of Flores. The numerous islets lying in the N part of the strait affect the general direction of the currents causing whirlpools, eddies, and tide rips N of Pulau Rinca.

The tidal currents are semidiurnal and although very strong at the narrows in the N end of the strait, they are much weaker immediately N of the narrows and in the S and wider part of the strait.

The maximum rate of current in Selat Molo is unknown, but a current of more than 5 knots was observed during a period of neap tides. The maximum rate at springs is not known. It is

advisable to wait for the short periods of slack water before attempting to pass through the narrows.

Depths—Limitations.—The three channels leading among the islands N of Pulau Rinca, then to the S and into Selat Lintah, have depths of more than 36.6m, but numerous dangers lie on either side of the recommended tracks. The S part of the strait is deep and mostly clear.

Along the E coast of Pulau Komodo, a maximum velocity of 6 knots was observed during both the N and S currents. A velocity of 9 knots was observed S of the narrows between Pulau Padar and Pulau Rinca.

Little information can be given about the changes in tidal currents. In the narrows between Pulau Padar and Pulau Rinca, a S current with a velocity of 4 knots was observed to change to a 4 knot N current within a time period of 30 minutes. It was also observed that when the S current was running strongly W of Pulau Padar, there was a strong eddy N through **Loho Karbau** (Lehok Karbau) (8˚40'S., 119˚38'E.).

Anchorage.—Anchorages are available on both sides of Selat Lintah and in the S part of Selat Molo.

Pulau Komodo—North Coast

6.15 This coast is mountainous and except for the NW side of the NW peninsula, the coast and its points offer no landmarks. The islets off the NE end of Pulau Komodo are conspicuous.

Toro Beru (Toro Barumontjong) (8˚26'S., 119˚26'E.) is the NW extremity of Pulau Komodo and is a steep grassy point. Two bare rocks stand on a drying reef close off this point. Fairly strong currents may be encountered off Toro Beru. Teluk Beru (Loho Batumontjong) is entered about 1 mile E of Toro Beru. Teluk Beru provides anchorage, in 54.9m, sand. Though the bottom rises evenly, the 40m curve lies from 0.1 to 0.3 mile offshore.

Teluk Gili Lawa (8˚28'S., 119˚31'E.) is separated from Teluk Beru by a high peninsula which rises from 237m, near its N end, to 423m 2 miles farther N. The E side of the bay is formed by the islands of Gili Lawalaut and Gili Lawadarat. Teluk Gili Lawa has three bights at its head.

Loho Tala (8˚29'S., 119˚31'E.), the middle bight, can be recognized by its E entrance point which resembles the back of an elephant. The bight has a white sand beach and provides good anchorage in 40 to 45.7m, sand, with the S point of Gili Lawadarat in range, bearing 080˚ with the E entrance point of the bight.

Gili Lawadarat (8˚28'S., 119˚33'E.), the S island on the E side of Teluk Gili Lawa, is separated from Pulau Komodo by a narrow 11m passage and from Gili Lawalaut by a narrower 9m passage. Gili Lawadarat rises to a plateau with lower land and several peaks to the N.

Gili Lawalaut (8˚27'S., 119˚35'E.), the N island, is divided into two parts by a low isthmus. The E part has two peaks of almost equal heights. The W part consists of lower hills with several pointed peaks.

Pulau Toko Toko (8˚25'S., 119˚34'E.), about 2 miles N of Gili Lawalaut, is a small islet of raised coral. It has three summits, with the middle rising to a height of 26m.

A coral shoal, with a depth of 3m, lies 1.25 miles S of Pulau Toko Toko. Midway between this shoal and Gili Lawalaut is a rock awash.

The E coast of Pulau Komodo is described in paragraph 6.18.

The S coast of Pulau Komodo is steep and subject to a heavy sea, particularly during the Southeast Monsoon. This coast consists mostly of a large open bight with the island of Pulau Tala in its E part.

Caution.—A dangerous pinnacle rock, which covers and uncovers between the swells, lies about 1.5 miles S of the SW extremity of Pulau Komodo. Depths of more than 100m lie all around this pinnacle rock.

6.16 **Pulau Langkoi** (8˚44'S., 119˚23'E.), close off the S extremity of Pulau Komodo, is a steep, bare islet rising to a prominent ridge. Above-water rocks extend 0.2 mile S of the island.

Pulau Tala (8˚45'S., 119˚26'E.) lies 0.3 mile off Pulau Komodo. This partially brush-covered island has four summits, the highest rising to an elevation of 299m. All sides of the island are steep with the exception of its N side which has a gentle slope. A cone with a white sand beach lies on the S side. An above-water rock lies off the W entrance point of the cove.

Anchorage can be taken in a basin formed between Pulau Tala, the Pulau Komodo shore, and four rocks about 0.75 mile NW of Pulau Tala. Vessels lie sheltered here, in a depth of 44m, black sand and coral.

The peninsula forming the SE extremity of Pulau Komodo is narrow, high, and steep, with a 251m high hill shaped like a box near its E end. A high rock, fringed by a drying reef, lies about 0.75 mile E of the E end of the peninsula, but the intervening channel is clear. A drying reef extends a short distance off the middle part of the S side of the peninsula.

Selat Lintah

6.17 **Selat Lintah** (8˚37'S., 119˚35'E.), connecting Selat Sumba and the Flores Sea, passes along the E side of Pulau Komodo. The S entrance of the strait is wide and clear in the fairway, but the N entrance is fouled in places by rocks, shoals, and islands which cause irregular currents. For this reason the strait is rarely used.

The shores bordering Selat Lintah will be described in the following order:

1. The E coast of Pulau Komodo.
2. Pulau Padar.
3. Pulau Rinca.
4. The islets N of Pulau Rinca.
5. The NW coast of Flores.

Palau Komodo—East Coast

6.18 From the unnamed NE point of Pulau Komodo to Toro Kuning, 6.5 miles to the S, the coast is fairly steep. The two Pulau Bugies (Bugies Islands) off the NE point are separated from each other and from Pulau Komodo by clear channels marked by strong currents. These islands have high, sharp summits covered with reeds.

West of Pulau Bugies the coast of Pulau Komodo is marked by occasional sandy beaches, but farther S it is overgrown with mangroves. South of these two islands numerous reefs front the coast of Pulau Komodo up to 2 miles offshore.

A rock, 6.1m high and surrounded by a drying reef for a short distance, lies 1.3 miles E of the N end of **Tambunan Singkala** (8˚33'S., 119˚36'E.).

Toro Kuning (8˚36'S., 119˚35'E.), which is the outer end of a gradually sloping mountain spur, rises inland to a prominent hill, 314m high, whose summit consists of several sharp crests.

Three above-water rocks lie on a small drying reef about 0.5 mile SSE of the point. The intervening passage is clear.

From Toro Kuning to the SE end of Pulau Komodo, the coast and its off-lying islands are generally steep and rocky. Pulau Punya lies close off Toro Liang, the NE entrance point of Teluk Slawi which is a fairly large bay to the W. A 2.4m patch lies in the intervening channel.

Pulau Lawang (8˚37'S., 119˚32'E.), a smaller islet, lies almost 0.5 mile S of Pulau Punya; the intervening channel is clear. A small islet lies close off the S side of Pulau Punya, and two rocks awash lie within 0.3 mile E of the E side of the same island.

6.19 **Teluk Slawi** (8˚36'S., 119˚31'E.), entered between Toro Liang and Toro Lawi, about 1.5 miles WSW, is divided into two deep bays, one to the NE and the other to the SW. There are no currents within Teluk Slawi, but the cross currents at the entrance must be allowed for when entering or departing.

Soro Lia (8˚35'S., 119˚31'E.), which indents the NE side of Teluk Slawi, is deep and clear except for a 0.9m patch on its E side, 0.75 mile N of Toro Liang.

Soro Go (Soro Masangga) (8˚36'S., 119˚28'E.), which indents the SW side of Teluk Slawi, is bordered by mangroves along its shores and, with the exception of two islets in its central part. It is deep and clear seaward of the shore reef. The peninsula forming the E side of the bay terminates in Toro Lawi, the rocky SW entrance point of Teluk Slawi.

Between Toro Lawi and the SE extremity of Pulau Komodo, about 7.5 miles SSW, the coast is high and steep, indented by several small bays and fronted by a very narrow coastal reef. Teluk Logo, an open bay entered 3 miles SSW of Toro Lawi, provides anchorage as does Loho Sera, the bight near the S end of this coast.

Pulau Ndihang (8˚39'S., 119˚30'E.), a steep-to 96m high islet molded in the shape of a sugarloaf, stands 2 miles S of Toro Lawi. Pulau Logo, 105m high, stands 2.5 miles SW of this islet and has a conspicuous clear white stone wall on its NE side.

Pulau Padar

6.20 **Pulau Padar** (8˚39'S., 119˚35'E.), a reed-covered island, divides Selat Lintah into a main W channel and a narrow E channel. A 269m pyramidal hill in the NE part of the island is the most conspicuous summit of three hills which stand on the island.

Several islets lie close off the SW end of Pulau Padar. Pulau Padar-ketjil, 129m high, somewhat conical and sparsely vegetated, is the largest of these islets.

Pulau Sarang, a rock 0.75 mile SW of Pulau Padar-ketjil, is 29m high. Other dangers lie within 0.5 mile of the NW and SW coasts of Pulau Padar.

Pulau Payung (8˚40'S., 119˚37'E.) lies in mid-channel between Pulau Padar and Pulau Rinca, about 1.5 miles SE of the pyramidal hill on Pulau Padar.

Pulau Rinca

6.21 **Pulau Rinca** (Pulau Rintja) (8˚43'S., 119˚41'E.), between Selat Lintah on the W and Selat Molo (described later in paragraph 6.26) on the E, is a mountainous island and densely wooded in its S part. The N coast is divided into two parts by Lehok Kima.

Toro Nggikok (8˚36'S., 119˚37'E.), the NW extremity of Pulau Rinca, is steep and rises to a grass-covered hill, 249m high, about 1.5 miles SE.

Loho Karbau (8˚40'S., 119˚38'E.), a large bight, is entered between Sarai, a bright red island 1.5 miles S of Toro Nggikok and Toro Gongge, 2.75 miles S of Sarai.

The hilly coast behind the bight descends in a whitish-yellow slope to a narrow sandy beach.

Lehok Ginggo (Loho Ginggo) (8˚41'S., 119˚39'E.),entered between Toro Gongge and Toro Mbarata, 1.75 miles SSW, provides the best anchorage on the W coast of Pulau Rinca. No current is found in this bay. The shores of Lehok Ginggo are irregular and some islets lie in its N part. A drying rock, sometimes breaking but showing no discoloration, lies 0.5 mile W of Toro Mbarata. Sunken and awash rocks, not marked by discoloration but breaking at times, lie up to 0.25 mile off Toro Propa, a light-green rocky point 1.75 miles SSW of Toro Mbarata.

Toro Taa (8˚48'S., 119˚37'E.), the SW extremity of Pulau Rinca, has two above-water rocks plus several rocks awash lying up to 0.2 mile offshore.

The S coast of Pulau Rinca is vegetated and marked by vertical cliffs separated by narrow sandy beaches.

Loho Uadadasami (8˚47'S., 119˚39'E.), the large bay indenting the S coast of Pulau Rinca, is obstructed in its central part by Nusa Kode, an irregular-shaped island.

A rock, awash, not marked by discoloration, lies about 0.3 mile W of the drying reef which lies off the N point of the island.

The best anchorage can be found at the head of the E arm of the two bights at the head of Loho Uadadasami, S of a white sandy beach. Because the rock awash mentioned above is invisible at high water, it is advisable to approach this anchorage through the E arm.

From **Toro Nta Ulah** (8˚48'S., 119˚41'E.), the SE extremity of Pulau Rinca, the coast extends 5 mile NNE to Toro Walu and is indented by a number of small bays.

Toro Sie, about 1 mile S of Toro Walu, is conspicuous for its reddish-brown color and for a cave which pierces the point in a SW to NE direction. A rock awash close E of the point is not always marked by breakers or discoloration.

Toro Amarau (8˚46'S., 119˚44'E.), 0.5 mile NNE of Toro Sie, is conspicuous for a natural bridge of rock standing on the extension of the point. Loho Baru, entered between Toro Tongkir and Toro Tanturi, 3 miles NNE, provides anchorage for large vessels free of the current.

6.22 **Pulau Muang** (8˚42'S., 119˚46'E.), a small narrow island, lies with its N end 1.25 miles E of Toro Tanturi. A steep-to shoal extends more than 0.5 mile E from the middle of the E side of the island.

Salah Karontong (8˚40'S., 119˚46'E.), a bight between Toro Tanturi and Toro Waitimbang, 4 miles NE, is marked by a white sandy beach. The island Nusa Rohbong (Nuha Rohbang), which stands near the N end of the bight, lies 0.5 mile offshore. Nusa Kampas lies close off the N shore of Salah Karontong, almost 0.5 mile NE of Nusa Rohbong. This islet is low, has rocky shores, and is covered with vegetation.

Toro Waitimbang (8˚39'S., 119˚48'E.) is the SW entrance point and Toro Salah Molo, NNW of Toro Waitimbang, is the NW entrance point of the narrows leading through Selat Molo.

The coast between Toro Selah Melo and Toro Gindang, 4.5 miles W, is high, wooded, and fringed by a reef.

Loho Binga (8˚38'S., 119˚43'E.) is a reef encumbered bay lying 2.75 miles W of Toro Selah Molo. Pulau Gindang, a high steep-to island, lies 0.5 mile N of Toro Gindang.

Loho Buaja, a small bay encumbered by reefs and islets, is entered between Toro Gindang and Toro Pondo, 2 miles SW.

Loho Kima (8˚39'S., 119˚41'E.), a deep bay entered between Toro Pondo and Toro Kaloh, about 2 miles NW, extends about 4 miles S to its head. Three small detached heads lie off the W side of the bay. The southernmost and outermost of these dangers, which has a least depth of 0.9m, lies about 0.75 mile offshore.

Anchorage can be taken in Loho Kima over a muddy bottom out of the influence of the current.

The coast between Toro Kaloh and Toro Nggikok, 3 miles W, is fronted near its E end by steep-to above and below-water rocks which extend up to 1.25 miles N from the shore.

Islets North of Pulau Rinca

6.23 The numerous islets which lie N of Pulau Rinca are mostly reed-covered with occasional trees and bushes. Because of the very strong and irregular currents which set through the passages between these islets, they are rarely used by general shipping. The strong set, to and from the narrows of Selat Lintah and Selat Molo, is felt S and SW of **Pulau Pungu-besar** (8˚31'S., 119˚48'E.).

Pulau Siaba-besar (8˚32'S., 119˚39'E.), 3.5 miles NE of the NW extremity of Pulau Rinca, consists of coral with a N-S ridge rising to a height of 137m. The island coastal reef is narrow except on the N side where it extends about 0.5 mile offshore. Pulau Siaba-kecil, reef-covered, lies close W of the larger islet and is separated from it by a 7.3m channel.

Pulau Tatawa (8˚31'S., 119˚39'E.), a reed-covered island about 1 mile NNW of Pulau Siaba-besar, rises to a height of 93m and is steep on its N and W sides. A drying reef extends 0.3 mile from its S side. A 27m high sugarloaf shaped rock lies 0.75 mile SW of Pulau Tatawa.

Pulau Mauan (8˚33'S., 119˚38'E.), a scrub-covered island, lies 1 mile W of the SW point of Pulau Siaba-besar and is topped by three peaks. The tallest peak rises to a height of 38m. A bank, with depths of less than 20m, extends 0.5 mile S and SE.

Pulau Sabayur-besar (8˚30'S., 119˚44'E.), a partially reed-covered island about 3.25 miles NE of Pulau Siaba-besar, lies with several smaller islets on a submarine plateau over which the general depths are about 36.6m or less. Deep gullies separate many of the islets.

Pulau Sabayur-kecil (8˚31'S., 119˚42'E.), 60m high, lies close off the SW side of the larger island and is separated from it by a narrow deep channel.

Pulau Mengjatan (Pulau Mangiatan) (8˚33'S., 119˚41'E.), 2.25 miles SW of Pulau Sabayur-besar, rises to a height of 120m. A reef, the inner half drying and the outer half having depths ranging from 1.8 to 4.7m, extends almost 1.25 miles NE from the island.

Pulau Kanawa (8˚30'S., 119˚46'E.) has a plateau covered with reeds and is 91m high on its N part. The N coast is rocky, but the S half of the island consists of low, bush-covered land fringed by a sandy beach.

Pulau Misa (8˚32'S., 119˚45'E.), a low inhabited islet, lies 1 miles SSW of Pulau Kanawa. Numerous islets and reefs lie between this islet and Pulau Sabayur besar to the NW. Drying reefs lie within 1 mile E and SW of Pulau Misa.

6.24 **Pulau Pungu-besar** (8˚31'S., 119˚48'E.) and Pulau Pungu-kecil, its adjacent smaller islet to the N, lie on a drying reef which terminates 0.25 mile NE of the smaller islet. The NW coast of the larger islet is steep, broken, and has a whitish-yellow cast. A series of shoals, with depths of less than 11m, extends 1.5 miles N from a position about 1 mile N of the smaller islet. A steep-to, 2.7m coral patch lies 3.5 miles N of the same islet.

Pulau Bangkau (8˚33'S., 119˚47'E.) and Pulau Kukusan lie on the same drying reef, about 1 mile S of Pulau Pungu-besar. Patches of drying reef lie S of the two islets and still farther S, are the islets lying in the N entrance of Selat Molo.

Pulau Papagaran-besar (8˚34'S., 119˚48'E.) and the smaller Pulau Papagaran-kecil, 1 mile to the E, lie on drying reefs and form the S side of the channel which passes S of Pulau Sabayur-besar and its adjacent islets.

Pulau Panikia (8˚35'S., 119˚45'E.), 0.75 mile SE of Pulau Papagaran-kecil, lies on the NE edge of an extensive drying reef. A 4.9m coral patch lies in mid-channel between the drying reef and the coastal reef off the N coast of Pulau Rinca. Nusa Pimpe and Nusa Kaaba lie within 1 mile SE of Pulau Panikia. The latter islet is mangrove-covered and stands on the N end of a drying reef. An above-water rock lies 0.25 mile NE of Nusa Pimpe.

Pulau Tengah-besar and the smaller Pulau Tengah-kecil lie on the same drying reef about 0.5 mile W of Pulau Papagaran-besar. The conical summit on the larger islet rises to a height of 140m. An above-water rock lies about 0.25 mile off the W side of the larger islet. A trio of islets lie within 1 mile SE of Pulau Papagaran-kecil and a submerged rock, with a depth of 0.5m, lies 0.25 mile S of the southernmost of these three.

Selat Lintah

6.25 Three main channels lead through the islands N of Pulau Rinca into the S and wider part of Selat Lintah. In following these directions ample allowance should be made for the effects of the currents on steering.

The first channel passes W of Pulau Tatawa and Pulau Mauan. Approaching from the N, the three peaks on Pulau

Padar will be visible and the most conspicuous of these, the pyramidal peak in the E part, should be steered for on a course of 194˚. This course leads E of the 6.1m high rock in mid-channel, and E of the 2.1m coral patch farther to the S. Both these dangers will be safely passed when the S point of Pulau Siaba-besar is in range with **Mandjaga Peak** (8˚34'S., 119˚50'E.) on the NW coast of Flores.

The second main channel leads from the N between Pulau Siaba-besar and Pulau Mangiatan. There are no dangers on this route except for the rocks off the N coast of Pulau Rinca, W of the entrance of Loho Kima. These rocks are cleared to the N by steering 250˚ with the SE point of Pulau Pungu-besar in range, bearing 070˚ astern, with the saddle of Flores to the ENE. This range is the lower end of the third main channel.

The third main channel leads from the N, passing E of Pulau Kanawa. Steer 145˚ with the saddle on Pulau Pungu-kecil in range with the previously mentioned Mandjaga Peak. When the SW peak of **Gili Lawalaut** (8˚27'S., 119˚35'E.) is in range, bearing 285˚, with the S point of Pulau Kanawa, alter course to 195˚. Avoid the 11m patch in mid-channel W of Pulau Pungu-besar, and the 4.9m projection off the SW point of the same island. When the SW point of Pulau Pungu-besar is in range, bearing 070˚ astern with the saddle on Flores, steer 250˚on that range to the entrance of the broader, S part of Selat Lintah.

The channel between Pulau Padar and Pulau Rinca is not recommended.

Selat Molo

6.26 **Selat Molo** (8˚37'S., 119˚49'E.), connecting Selat Sumba with the Flores Sea, passes along the E coast of Pulau Rinca and along the SW coast of Flores. As previously stated, the strait can only be used by small, well-powered craft because of the strong currents in its narrowest part.

Gili Mota (8˚48'S., 119˚48'E.), an island in the S entrance of the strait, is the major landfall for Selat Molo from the S. This island has three peaks, the highest attaining an elevation of 449m, and is easily sighted because of its sharp outline.

Both shores of the broad S part of Selat Molo are marked by a succession of sharp, high points generally covered with tall reeds. Muddy, mangrove-covered bights lie in between. A prominent exception is the bight at Salah Karontong on Pulau Rinca at the entrance of the narrows leading through Selat Molo. This bight has a white sandy beach visible for a great distance. In general, the bays on either shore can provide anchorage according to their size.

A dangerous drying rock lies in mid-channel between Toro Kembang, the NE extremity of Gili Mota, and the coast of Flores to the NE. This rock seldom breaks and never shows any discoloration.

Selat Molo Narrows are entered between Toro Waitimbang and the Flores coast close N of Linteh village. The shores are uninhabited and alternately rocky and muddy. Pulau Muleng, about 0.5 mile N of Toro Waitimbang, consists of two large mid-channel, growth-covered rocks lying close together in a N-S direction. A 0.9m shoal extends 160m S from the S rock.

Tukoh Selat Molo, an island about 1.25 miles N of Pulau Muleng, consists of a single clump of vegetated rocks. The narrowest part of the passage is found close S of Tukoh Selat Molo.

Directions.—When approaching from the S, Gili Mota, the landfall island, is readily identified. The channel which passes W of this island, being wide and danger free, is preferred. If proceeding E of Gili Mota, the dangerous drying rock lying midway between the NE point of Gili Mota and the Flores shore must be avoided.

In order to clear this rock, bring Doro Tumbuh, the 187.5m peak on Pulau Rinca, in range bearing 331˚ with the opening between Nusa Baleh and the saddle-shaped islet close W, which leads 0.32 mile W of the rock.

Having cleared this rock, course should then be altered to the NW passing N of Gili Mota.

The narrows of Selat Molo may be navigated by eye but only at slack water. Pulau Muleng and Tukoh Selat Molo may be passed on the E side, as there is more room E of the latter rocks. From the N end of the narrows, steer NW and when the W sides of Pulau Pungu-besar and Pulau Bangkau are in range bearing 002˚, steer for them passing W of Pulau Nisa Purung and Pulau Gadoh.

Flores

6.27 A mountain chain, attaining a height in excess of 2,377m in the W part, traverses the middle of Flores from W to E. From both sides of the chain, ridges run N and S forming steep promontories. The W part of the island has no volcanoes, but the E part, especially near the E and S coasts, has numerous volcanoes, some still active. Many rivers discharge along the N and S coasts but none are of any use to commercial shipping. Only a few are navigable near their entrance by small craft at high water. During the rainy season, they are not navigable higher up because of the strong currents, and in the dry season they are too shallow or dry completely.

Toro Waturamba (8˚26'S., 119˚52'E.) is the steep, rounded NW extremity of a hilly, grass-covered peninsula showing two summits from a W and E direction; the S summit rises to a height of 216m.

A bare, dark rock, 24m high, resembling a lion lying down with its head W, lies 1 mile SW of Toro Waturamba.

Pulau Seraya-besar (8˚23'S., 119˚52'E.) lies 1.75 miles N of Toro Waturamba, and has three summits. The W and highest summit rises to a height of 187m. The coast of the island is steep and rocky with occasional sandy beaches. The coastal reef is steep-to and shoals lie within 1 mile of the NE extremity of the island.

Pulau Seraya-kecil (8˚24'S., 119˚52'E.), between the above island and the coast of Flores, is low, wooded, and fringed by a steep-to drying reef.

There is a large area SW of Pulau Seraya-besar and W of Pulau Seraya-kecil, with depths of 35 to 55m, mud and sand, which provides good anchorage that is sheltered from the Southeast Monsoon.

Pulau Sabolan-besar (8˚23'S., 119˚49'E.) and Pulau Sabolan-kecil lie W of Pulau Seraya-besar, and are separated from it by a deep clear passage, 1.5 miles wide.

All of the coasts of the larger island are rocky, except its SE extremity which has a sandy beach. Both islands are fringed by a narrow, steep-to reef.

Pulau Sabolan-kecil is marked by a light.

The coast between Toro Waturamba and **Pulau Boasala** (8˚36'S., 119˚47'E.), about 10.75 miles SSW, is indented by a large bight in its N part. Pulau Boasala is the NE entrance point to the narrows of Selat Molo.

Pulau Tobolon (Pulau Tebolon) (8˚29'S., 119˚50'E.), Pulau Situri, Pulau Tenga, and Pulau Bajo, with the exception of Pulau Tobolon, are connected by the same drying reef and extend from W to E in that order. Pulau Tobolon, the westernmost island, is reed-covered and has a coconut plantation on its S side. Two small islets lie in the passage which separate Pulau Tobolon from Pulau Situri to the SE. This passage is not recommended because of the strong currents which set through it.

Pulau Situri (Pulau Kokotoan) (8˚29'S., 119˚51'E.), which rises to a height of 90m, has a dangerous drying rock close off its SW end.

6.28 **Pulau Tenga** (8˚29'S., 119˚51'E.) is topped by three summits, the N and E, 122m high, have conspicuous yellow stripes.

Pulau Bajo (Pulau Badjo) (8˚29'S., 119˚52'E.), 97m high on its N side, has a village on its NE extremity.

Labuhanbajo is the S part of the channel between Pulau Bajo and the coast of Flores to the E. The roadstead is free from danger but there are shoals in the approaches. In the S approach, a sunken coral rock which is seldom marked by discoloration, lies 0.75 mile S of the low, sandy point at the NW end of the village of Labuhanbajo. A sunken rock lies close off the stone pier fronting the village. In the N approaches, a 4m patch lies in mid-channel, 0.25 mile N of the same low sandy point reducing the navigable channel to a width of barely 91m.

Confined anchorage can be taken, in depths of 16 to 18m, mud, 0.25 mile SSW of the above low, sandy point.

The currents never exceed a rate of 0.5 knot in the roadstead.

Labuhanbajo (Labuhanbadjo) (8˚29'S., 119˚53'E.) (World Port Index No. 51310) is a large village of some importance as a place of export. A 39.5m long pier extends from the shore abreast of the village, but is available only to launches. A flagstaff stands on the beach, but it is difficult to identify unless a flag is displayed from it. A conspicuous white tomb stands N of the village.

The coast between Labuhanbajo and Pade Village, about 1 mile to the S, is steep-to about 0.25 mile offshore. Between this village and Toro Batuputih, about 3.5 miles SW, the coast is bordered by coconut trees and houses.

Toro Batuputih (8˚32'S., 119˚51'E.), a steep, protruding white point, 75m high, has a white sand beach on either side and is conspicuous.

Pulau Mandjaga, which appears as a high cape from the W and NW, is joined by a drying reef to a point about 1 mile WSW of Toro Batuputih.

The coast between Pulau Mandjaga and the narrows of Selat Molo is mostly marshy with occasional rocky areas.

Pulau Kelor (8˚33'S., 119˚49'E.), lightly vegetated and conspicuous for its 60m hill, lies 1 mile WSW of Pulau Mandjaga.

6.29 **Pulau Gadoh** (8˚35'S., 119˚48'E.) lies close offshore on the coastal reef, 2 miles SSW of Pulau Kelor. Pulau Gadoh is hilly with a marshy coast, except on its rocky W extremity and on which there are some above-water rocks on the fringing drying reef.

A steep-to, partially drying reef, which is not always marked by discoloration, lies about 0.75 mile NNE of the 4.9m patch, about 0.25 mile NW of the W end of Pulau Gadoh.

Pulau Boasala (8˚36'S., 119˚47'E.), covered by vegetation, rises to two round peaks each about 156m high; together these peaks form a flat-topped plateau. A conspicuous, bare reddish patch is located on the SW side of the islet. The islet is also the NW entrance point to the narrows of Selat Molo.

Anchorage.—Anchorage can be taken almost anywhere off this part of the coast of Flores. The best position lies in the bight formed by Pulau Boasala, Pulau Gadoh, and the coast of Flores. Good anchorage can also be taken in the bight at the NE end of Pulau Rinca, which has Rinca Village at its head. In the more open area W and N of Pulau Boasala, the current is never too strong for a vessel to anchor while awaiting for slack water in Selat Molo.

Selat Molo and the narrows of Selat Molo have been previuosly described in paragraph 6.26 as part of Pulau Rinca.

6.30 **Toro Wairii** (8˚40'S., 119˚48'E.), lying 9 miles S of Pulau Boasala, is the SE entrance point to the narrows of Selat Molo. A shoal of sand and stone, marked by discoloration at low tide, with a depth of 5.5m, lies 0.35 mile N of Toro Wairii.

A 7.6m shoal, not marked by discoloration, lies 0.25 mile further N.

Anchorage.—Anchorage can be obtained NE of the point, in depths of 10 to 12m. Toro Ladjar, a bare rocky point 18m high, lies 1.25 miles SSW of Toro Wairii.

From any distance to the S, the point looks like an islet.

Ini Tengah (8˚42'S., 119˚48'E.), a rock on the extremity of a drying reef, lies 1 mile S of Toro Ladjar.

This rock is 18m high and stands out prominently against the beach behind it.

Loho Kenupur (8˚45'S., 119˚48'E.) is a small bay lying 2.75 miles S of Ini Tengah. A conspicuous rectangular rock, 18m high, is the outer rock fringing the S entrance point of the bay. The N point of the bay drops sheer to the sea. Loho Rase is entered about 1 mile N of Loho Kenupur.

Numerous islands, rocks, and shoals lie in the channel between Gili Mota and the coast of Flores.

Toro Keritaku is a small, bare, cliffy, promontory lying 2 miles E of Gili Mota. The point rises to a 549m high mountain 2.25 miles NNE.

Tanjung Keritamese, lying 4.75 miles SE of Toro Keritaku, is the SW end of Flores.

Flores—South Coast

6.31 **Tanjung Keritamese** (Toro Kerita) (8˚52'S., 119˚55'E.) is the broad end of a peninsula having several small projections. A hill on the peninsula rises to a height of 408m and from any distance to the E or W appears as an island. The sides of the point are rough, bare and steep, and in places precipitous.

The W part of the S coast of Flores from some distance offshore appears as desolate, irregular-shaped mountain terrain with only an occasional area of coastal lowland. Large parts of

the island are covered with reeds and sparsely covered with trees.

This part of the coast is partially protected by the high island of Pulau Sumba, but even a slight sea raises a surf along the coast.

Pulau Mules (8˚54'S., 120˚18'E.) is a prominent landmark along this part of the S coast. This island is hilly, mostly barren, and is conspicuous for the columnar peak in its SW part.

The volcanic cone of Gunung Inerie, about 40 miles E of Pulau Mules, is another good landmark.

The S coast of Flores, E of Gunung Inerie as viewed from the Savu Sea, is a rugged high mountainous area. The only low section of coast found along this stretch can be found in the area NE of Teluk Paga, about 73 miles E of Ineri, where Flores is only 6 to 7 miles wide.

The 200m curve never extends more than 2.5 miles off the S coast of Flores. Beyond 200m, the coast is entirely clear of dangers.

Tides—Currents.—The tidal currents along the S coast of Flores are semidiurnal and weak, and approximately parallel the shore. From November to March, the W current was observed to be stronger than the E current but never stronger than 1.5 knots. A current of 2 to 3 knots may be encountered in the channel between Pulau Mules and the shore. Currents greater than 1.5 knots are also found at the S entrance of Selat Flores at the E end of the island.

Toward the middle of Selat Sumba and the Savu Sea, the monsoonal current is the predominate set. As far as is known, the W set is stronger than the E. It is probable that there is a regular and constant W ocean current in these open areas.

From Tanjung Keritamese on Toro Lomo, 25 miles to the E, the coast gradually changes from a steep, rugged, wooded area to regular flat ridges covered with reeds. These ridges slope seaward, usually terminating in 20m high bluffs which are often carved into grottoes and odd projections by the sea.

6.32 Teluk Nangalili (Nangaele Bay) (8˚48'S., 120˚09'E.) is the wide bight between Tanjung Keritamese and Toro Repi. Nangalili, a small village, stands 0.5 mile within the mouth of a small river which flows into the head of the bay. A drying bank obstructs the mouth of the river.

Tangi, a village built on the seaward side of a high, steep ridge, is situated about 3 miles inland of Nangalili.

Anchorage can be taken in a depth of 43m off the drying bank fronting the river. During the Northwest Monsoon, vessels can anchor, in a depth of 45.7m, in the middle of a small bay that indents the E side of the peninsula forming Tanjung Keritamese.

Toro Lomo (8˚50'S., 120˚19'E.), low and tree-covered, is fronted by sandy beach. Pegunungan Todo (Munti Mountains), a high, lofty chain, lie to the N of Toro Lomo.

Pulau Mules, which has been previously described in paragraph 6.31, is almost completely surrounded by a sandy beach, and in a few places fringed by a narrow reef. The channel between this island and the mainland coast is deep and clear, but strong currents run through it.

Anchorage can be taken, in depths of 40 to 55m, off the NW side of the island; however, tidal currents in this anchorage sometimes attain a speed of 3 knots.

Between Toro Lomo and **Toro Watu Ipu** (8˚50'S., 120˚37'E.), about 18 miles to the E, the coast is slightly indented by a wide bight whose shores are flat, tree-covered, and backed by rising ground. Two small villages are situated at the NW and NE corners of the bight. The coast, in the vicinity of the former, appears as a high wall fronted by a sandy beach.

Teluk Aimere (8˚52'S., 120˚50'E.), entered between **Toro Atuoto** (Tanjung Saukemeh) (8˚53'S., 120˚47'E.) and Toro Wai Waru, a low point about 6 miles to the E, is deep throughout. The former point is steep, broken, and strikingly white. The W side of the bay is steep and rocky, whereas the N side rises gradually inland. A long chain of mountains backs the E shore of the bay.

Gunung Inerie (8˚53'S., 120˚59'E.) is a volcanic cone remarkably symmetrical and stands isolated by valleys and clefts from the peaks to the N. This cone is visible for a great distance seaward and is a valuable aid to navigators.

There is little or no current in the middle of Teluk Aimere, but strong currents are sometimes found along the shores.

Anchorage can be taken off the mouth of a river, at the head of the bay, in a depth of 49m off the village of Aimere, SW of the zinc-roofed customs shed.

From Toro Wai Waru, the coast is boarded by the base of Gunung Inerie as far as **Ngaru Bere** (8˚57'S., 121˚00'E.), the S point of Flores, about 8.5 miles SE. Between the latter point and Ngalu Tangi (Ngaru Dai), about 19 miles ENE, the coast is indented by a large bight backed by steep mountains with cultivated slopes.

6.33 Teluk Ende (8˚50'S., 121˚31'E.), entered between Ngaru Dai on the W and Tanjung Ija on the E, is surrounded by hilly land with higher mountains lying farther inland. The peninsula separating this bay from Teluk Ipi to the E, has an active volcano in its S part. This volcano rises to a height of 669m and is covered with sulfur and ashes from frequent eruptions. It has an active crater on its S side.

The massive Keli Kotto (Ngakroe Tangi) has steep spurs and forms the W side of the larger bay. The spurs rise steeply from the sea to a height of 1,407m. A prominent mass of grass-covered rocks stands near the coast, SE of Keli Kotto.

The N shore of Teluk Ende consists of a limestone formation with some prominent white and gray patches. Ende, a village of some importance, stands in the NE corner of the bay.

Pulau Ende (Pulau Nosea) (8˚52'S., 121˚32'E.), which lies near the center of Teluk Ende and 2.5 miles offshore, consists of two mountains joined by a fairly low, narrow ridge. The S and higher mountain of the two is 472m high and prominent. Several villages are situated on the island.

6.34 Ende (Endeh)(8˚50'S., 121˚39'E.) (World Port Index No. 51340), a small village standing in the NE corner of the bay, is the seat of a government official. The village can be recognized by a white building with a dark roof, and by a building with a red roof, both near the shore W of the pier. A light, 43m high, stands in position 8˚50.7'S, 121˚ 38.6'E.

The pier, which extends from the shore abreast the village, is 100m long with a depths of 5m alongside. Pertamina Oil Berth, consisting of an island with two mooring buoys, has a depth of 7.2m and may accept vessels up to 6,000 dwt, with a length of 120m.

The 40m curve lies about 0.15 mile offshore off Ende, and anchorage can be taken in depths of 55 to 66m, 0.25 mile NW of the pier. During the Southeast Monsoon, a moderate swell sets into the bay especially in the afternoon.

Teluk Ipi (8˚52'S., 121˚41'E.), entered close E of Tanjung Ija, is marked by a light at its head. During the Northwest Monsoon, it is better to anchor in Teluk Ipi, about 0.25 mile of **Ipi Village** (8˚51'S., 121˚40'E.), in a depth of about 54.9m. Care must be taken not to anchor too close to the coastal reef to the N. A light is shown from Ipi.

The coast E of Teluk Ipi is high and steep and is formed by the spurs of the sharp mountain ridges.

Teluk Mbuli (8˚50'S., 121˚53'E.), an open bight backed by a broad well-cultivated strip of land fronting the coastal mountains, is very deep. A reddish-colored, dome-shaped hill, 704m high, forms the E point of the bay. Some dangers lie up to 0.75 mile offshore E of this point. The bay does not afford safe anchorage during either monsoon.

Ngalu Ljukate (Ngaru Itju Kate) (8˚48'S., 122˚00'E.), a cliffy perforated point, lies about 6 miles ENE of Teluk Mbuli. A village stands on the banks of a river which discharges close W of the point. A rocky islet stands in a small bight close E of the point. A prominent light-green hill, 308m high, stands close to the coast at the head of this bight.

6.35 **Teluk Paga** (8˚45'S., 122˚07'E.), a deep open bay, lies centered about 8 miles NE of Ngalu Ljukate. A conspicuous peak with a flat summit, 1,446m high, rises about 6.5 miles N of the head of the bay. Two large villages, fronted by reefs which extend about 0.5 mile offshore, stand near the shore on the W side of the bay. A village, consisting of a few houses and a mission, stands in the NE part of the bay.

Anchorage can be taken off this village in a depth of 58m. Fair shelter is provided during the Southeast Monsoon.

Sika Besar (8˚45'S., 122˚12'E.) and Tanjung Wokar, a point about 1.25 miles to the E, form a long, flat plain backed by steep mountains. A church stands in a village on this plain. The spire and zinc roof of the church are visible from the offing. A number of sheds stand near the shore and a reef extends about 0.25 mile offshore.

Ngaru Baluk, a steep, rocky point about 80m high, lies about 4.25 miles E of Tanjung Wokar.

Ngaru Kelahi (8˚42'S., 122˚32'E.), about 16 miles E, is the extremity of a steep mountain ridge and can be recognized from the offing by two vertical patches of white rocks, one above the other. The bight between this point and Ngaru Kuar, about 6 miles to the NE, is bordered by a sandy beach.

Tanjung Tuak (8˚38'S., 122˚43'E.), about 12 miles ENE of Nagaru Kelahi, has a prominent, bare hill, 138m high. An oblong reef, with a least depth of 1.5m, lies centered about 2 miles W of this point and 1 mile offshore.

The coast to the E of Tanjung Tuak is surmounted by **Ili Lewotobi-perempuan** (8˚33'S., 122˚47'E.), consisting of two active volcanoes. The highest volcano is 1,704m.

Tanjung Lirang (Tanjung Lerang) (8˚37'S., 122˚47'E.), the E of two rocky points, lies about 3.5 miles NE of Tanjung Tuak. Tanjung Lirang is reported to be prominent.

6.36 **Larantuka** (8˚21'S., 122˚59'E.) (World Port Index No. 51330) is situated about 17 miles NE of Tanjung Lerang.

The coast between the points is indented by two bays separated by a mountainous promontory. There is a pier, 46m long, which can be used as a landing place, but not for vessels to berth alongside, fronting the village. The custom house is situated on the pier with a flagstaff at its root. A long barrack stands about 1.5 miles W of **Laurantuka Light** (8˚20'S., 122˚59'E.), 0.2 mile NE of the church.

Small ferries run between Larantuka, Pualu Solor, and Pulau Andonara.

Anchorage may be taken in a depth 29m, 0.2 mile off the pier or for a distance of 0.6 mile, NE of this berth.

Between Larantuka and **Tanjung Matangdu** (8˚17'S., 123˚01'E.), about 4.5 miles NNE, the coast slopes gradually upward and is mostly wooded with palms. Sandy beaches front the coast.

From Tanjung Matangdu to **Tanjung Karangwutun** (8˚08'S., 122˚58'E.), about 9.25 miles NNW, the coast is mountainous and fringed by a narrow reef.

Pulau Serbete (8˚09'S., 123˚01'E.), an islet 29m high with a sandy beach on its S side, lies 7.5 mile N of Tanjung Matandu. The N side of the islet is rocky. The island lies on the W end of a reef which extends 1.75 miles E. The reef dries entirely at LW in April and November. Sand cays lie off the W side of the islet, midway along the N side and on the E end of the reef.

The S side of the reef is almost steep-to, but irregular depths extend 1.5 miles NW of the N side of the reef. The channel between Pulau Serbete and the E coast of Flores is deep and clear of dangers. Tanjung Serbete Light is shown from a beacon near the point.

Between Kari-Wutun and **Tanjung Kopondei** (8˚04'S., 122˚52'E.), about 7.5 miles NW, the coast is rocky and steep with all dangers lying within 0.5 mile offshore.

Flores—North Coast

6.37 **Toro Waturamba** (8˚26'S., 119˚52'E.), the NW extremity of Flores, has been previously described in paragraph 6.27.

The N coast of Flores, E of Toro Waturamba, is very irregular with numerous projecting points and inlets. The coast rises steeply to the high mountains in the interior. The central mountains of Flores can be seen far inland.

Many of the bays provide good anchorage during the monsoons, with some providing shelter from both monsoons.

Detached dangers lie up to 6 miles off the projecting points along the N coast. All of these dangers lie within the 200m curve, except **Gosong Boni** (8˚22'S., 122˚14'E.) and Pasir Layaran (Angelica Bank), both described later in paragraph 6.45 and paragraph 6.43, respectively.

The currents off the N coast of Flores usually follow the direction of the prevailing monsoon, at a rate of 1 knot.

Teluk Rangko (8˚27'S., 119˚55'E.), whose E boundary is Toro Waturamba and Teluk Boleh, lying just to the E of Teluk Rangko, are separated from each other by Toro Boleng, a steep point 186m high. These bays are of little navigational importance because of the dangers in their approaches.

Teluk Terang (8˚24'S., 120˚07'E.), with an entrance 0.3 mile wide, is deep and clear in its outer part. The entrance lies between the reefs extending N from **Toro Tjarmi** (8˚21'S., 120˚07'E.) on the E side, and those extending N from Toro

Lehok Tjamba. The latter point stands 3.3 miles E of **Toro Pontianah** (8˚23'S., 120˚02'E.).

Three inlets, of little importance to shipping, indent the W side of the bay.

Anchorage can be taken in the outer part of the bay, in convenient depths over a bottom of mud.

Nusa Longgo (Nusa Longos) (8˚21'S., 120˚08'E.) is a low, stony, wooded island with a marshy coast lying close N of Toro Tengkel (Toro Tjarmi).

A chain of reefs, separated from the reefs fringing Nusa Longos by the deep channel leading to Teluk Terang, extends 3 miles NE from Toro Lehok Tjambi, and then 8 miles W, just within the 200m curve.

Teluk Levilia (8˚22'S., 120˚10'E.) lies between Nusa Longos and the coast to the S and SE. The entrance is 0.4 mile wide between the reef fronting the NE side of Nusa Longos, and the reef extending from the coast to the E.

Anchorage.—Vessels can anchor in Teluk Levilia. Good anchorage can be taken, in a depth of 40m, mud, S of the E point of Nusa Longos.

Between **Tanjung Peta Bari** (8˚18'S., 120˚12'E.) and Tanjung Besi, about 14.5 miles ENE, the coast is fringed by a narrow reef and backed by high mountains.

The former point, which is low and sandy, has a white sandy patch, always above-water, on the reef to the W of it.

6.38 Tanjung Besi (8˚14'S., 120˚25'E.), marked by a light, is the extremity of a very prominent plateau rising to a height of 392m.

Between this point and Tanjung Kurungbaja, about 10 miles to the E, the coast is indented by two rather small bays.

Teluk Reo (8˚16'S., 120˚30'E.) is entered between the E side of the promontory terminating in Tanjung Besi and a low point about 4.75 miles to the SE.

Reo Light (8˚17'S., 120˚27'E.) stands on the E side of Tanjung Besi. The W shore of the bay as far as Toro Kedindi, a low rocky point 2.5 miles SSE of Tanjung Besi, rises steeply to the plateau on the promontory and is bordered by a sandy beach. Saddle Mountain (Zadelberg), a prominent 1239m high mountain, lies 11 miles S of the head of Teluk Reo.

Kedindi Village (8˚17'S., 120˚27'E.) lies at the head of Teluk Kedindi and is fronted by a pier in ruins which extends across the coastal reef. Several rocks and a stranded wreck lie off the pier.

Anchorage can be taken, in a depth of 22m, mud, off the pier at Kedindi and in a depth of 45.7m, SE of Kedindi.

Teluk Linggeh (8˚16'S., 120˚34'E.) is entered between Toro Lubu (8˚16'S., 120˚32'E.) and Tanjung Kurungbaja, 4 miles to the ENE, and provides the best anchorage for large vessels along this part of the coast. The head of the bay is low, marshy, and intersected by several small rivers. Vessels can anchor in depths of 43.8 to 54.9m, mud, in the SE part of the bay.

Tanjung Kurungbaja (8˚15'S., 120˚36'E.), a steep, rocky point with a 205m round-topped hill, 0.5 mile S, is the termination of a ridge descending from the mountain range inland. Between this point and Toro Barat, 8.5 miles SE, the coast is steep and wooded with occasional sand beaches and marshy strips.

Labuhan Pota (8˚20'S., 120˚45'E.), a small open bay fringed by a drying reef, is entered between Toro Barat and Toro Lari, about 2.75 miles ESE. A sandy beach, intersected by several streams, forms the shores of the bay.

Toro Roto (8˚20'S., 120˚48'E.), which stands about 3 miles E of Toro Lari, consists of a broad mountain spur with a light brown color. Olifantsberg (Golo Watupuh), 1,145m high, bare, and resembling an elephant, rises 8 miles S of the same point.

Toro Padang (8˚20'S., 120˚59'E.), about 13 miles E of Toro Roto, is the NE extremity of a partly wooded peninsula forming the W side of Teluk Damu, and which is connected to the mainland by a low narrow isthmus about 0.5 mile wide. The peninsula rises to a height of 209m about 0.75 mile WSW of Toro Pedang.

6.39 Teluk Damu (8˚22'S., 120˚59'E.) is deep, clear of dangers, and provides sheltered anchorage, but in considerable depths. The E side of the inlet is fouled by reefs which extend 1.25 miles from the N side of Pulau Untelue (8˚23'S., 121˚01'E.), leaving an entrance 0.2 mile wide between them and the reefs extending from the E side of Toro Padang. Unnamed islets lie on the drying reefs extending from the N side of Pulau Untelue.

Teluk Riung (Rioeng Bay) (8˚23'S., 121˚02'E.) is a large, reef-strewn bay lying between Pulau Untelue on the W side and Pulau Ruton and Pulau Tangril, both lying on a drying reef, on the W side.

Batu Kolong lies on the reef extending 0.5 mile from the E side of Pulau Untelue.

Between Batu Kolong and a point 4.75 miles ESE, the coast is fronted by bare and rocky islets and reefs, the latter extending up to 0.75 mile offshore. Some of these islets off Teluk Riung are good landmarks.

Riung Village (8˚26'S., 121˚01'E.) stands on the crest of a hill, 564m high, about 2.25 miles inland.

Anchorage.—Anchorage can be taken in Teluk Riung in the outer roadstead in a depth of 51m, about 0.75 mile ESE of Batu Kolong. Small vessels can anchor in the inner roadstead in a depth of 27m, mud, about 1.5 miles S of Batu Kolong, but the space is confined. Good shelter is provided in both roadsteads during the monsoons.

Directions.—Vessels approaching from the W should steer 146˚ for Pulau Ruton. When Pulau Pata bears 201˚and is open E of Riung Village, steer for it on that bearing to the outer anchorage. If anchoring in the inner roadstead, continue on this course until **Pulau Babajie** (8˚24'S., 121˚01'E.) bears 230˚, then steer by eye between the drying reefs, which are marked by discoloration extending from Pulau Pata, and Pulau Lainjawa, almost 0.5 mile NNW.

When approaching from the E, Pulau Dua should not bear more than 270˚, and when Pulau Pata bears 201˚, proceed as previously directed.

6.40 Tanjung Torieng (8˚25'S., 121˚09'E.), which lies 7 miles E of Teluk Riung, is the relatively low, rocky end of a narrow hillcrest sloping from SE to the NW.

Between Tanjung Torieng and **Tanjung Nbai** (8˚30'S., 121˚18'E.), about 10 miles ESE, the tree-covered coast is low for the most part. Spurs descend to the coast from Gunung Wangka, about 6 miles SSW of Tanjung Torieng.

This prominent mountain rises to a height of 1,126m and is the summit of a high ridge extending to the NW. A prominent

rocky, rugged hill, 256m high, stands near the coast about 4.5 miles W of Tanjung Nbai. A light is shown from the coast 2.25 miles SSE of Tanjung Nbai.

The 200m curve parallels the coast about 3 miles offshore. A long ridge of reefs, which continue to the E as far as a peninsula about 19 miles E of Tanjung Nbai, lies close within this curve. The best passage through the outer reefs lies W of **Pasir Rita** (8˚26'S., 121˚18'E.) with the 256m hill, about 4.5 miles W of Tanjung Nbai, bearing 231˚. Pasir Rita consists of a large sand bank with some low trees, which is surrounded by a drying reef.

Between Tanjung Nbai and **Tanjung Lambo** (8˚26'S., 121˚22'E.), about 6 miles SE, the coast is low and marshy. An extensive plain lies inland along this stretch of coast.

Several deep bays, separated by prominent points, indent the coast between Tanjung Lambo and Ngalu Pola Boko (Tanjung Karterbileh), about 16.25 miles ENE. The 200m curve fronts the projecting points up to 2.5 miles offshore. Just within this curve lies the chain of reefs previously mentioned. Other dangers lie in the immediate approaches to and within these bays.

6.41 Teluk Todo (8˚34'S., 121˚26'E.), a small exposed bight, is entered between a conspicuous white limestone point, located 1.5 miles ESE of Tanjung Lambo, and Tanjung Todo, a steep, rocky, grass-covered point lying 3.5 miles to the E. A mountain with a broad summit, 416m high, stands about 1 mile S of this latter point. A sharp peak, 569m high, stands 2.25 miles SSE of the same point.

The head of the bay consists of a marshy lagoon, with a steep rocky islet lying in the entrance. Two large rocks lie on the drying reef fringing the W entrance point of the bay.

Teluk Todo provides fair anchorage, especially during the Northwest Monsoon, because it is somewhat protected from the sea by numerous reefs. The anchorage is difficult to reach and should only be attempted by small vessels with local knowledge, and then only under the most favorable conditions.

Teluk Sindeh (Tjiendeh Bay) (8˚34'S., 121˚31'E.), entered E of Tanjung Sindeh and located 2.5 miles ESE of Tanjung Todo, provides anchorage during both monsoons. Pulau Sindeh (Tjiendeh), a rocky islet 89m high, is separated from Tanjung Sindeh by a narrow passage. A reef, with a depth of 1.8m, lies in the middle of the entrance to the bay. Other reefs and dangers lie within 1.5 miles NNW of Tanjung Kaburia, which lies about 2 miles E of Tanjung Sindeh.

Anchorage.—Teluk Sindeh is more spacious than Teluk Todo, and although more open to N winds, affords safe anchorage to vessels with local knowledge.

Directions.—Steer for the limestone point 0.5 mile S of Tanjung Kaburia, bearing 174˚, which leads 0.7 mile E of a drying sand bank, 2.75 miles N of Pulau Sindeh.

Continue on this course until the N side of the islet is in range, bearing 276˚, with Tanjung Todo. Then proceed into the bay passing W of the reefs lying off the E entrance.

6.42 Ngalu Pola Boko (Tanjung Karterbileh) (8˚28'S., 121˚37'E.), 9 miles NE of Teluk Sindeh and marked by a light shown at an elevation of 127m, and Tanjung Lolakota, 1.75 miles further E, are the N and NE points of a rugged peninsula. Between the latter point and Tanjung Batuboga, about 19 miles to the E, the coast is indented by some wide, open bays. In several places the mountains recede inland, leaving fairly broad plains fronted by sandy beaches.

The 200m curve lies up to 1.5 miles off the salient points. A chain of reefs extends along the 200m curve, except to the N of Teluk Nangarujeng. These reefs increase in number as Tanjung Batuboga is approached.

Pulau Palu (8˚20'S., 121˚43'E.) lies 8.5 miles NNE of Ngalu Pola Boko and is 889m high. The 200m curve is never more than 0.3 mile offshore. A steep mountain ridge exists on the NW part of the island.

Labuan Bokko, a small open bight, indents the NW coast close S of this ridge. Small vessels, with local knowledge, can anchor off the N coast about 0.15 mile NW of Mage and 0.1 mile off the coastal reef in depths of 54.8 to 73.2m.

Caution.—Caution is advised because the bottom is steep. It is advisable to run a hawser to the shore.

Teluk Nangarujeng (Nanga Roedjong Bay) (8˚30'S., 121˚41'E.), 3 mile SE of Tanjung Lolakota, is entered between an unnamed point and a reef-fringed point, about 3 miles to the E. It is deep and clear, but exposed to both monsoons. Fair weather anchorage can be taken in depths of 27 to 45m, mud, about 0.5 mile offshore.

Teluk Mausambi (8˚29'S., 121˚48'E.) is entered between Tanjung Mausambi and **Ngalu Bu** (8˚29'S., 121˚50'E.), about 3.5 miles ENE. It provides some shelter from both monsoons. A ridge of reefs, just within the 200m curve, fronts the entering points. A small reef, with a depth of 4.9m, lies 0.6 mile E of Tanjung Mausambi.

Another reef, with a depth of 0.9m, is 0.4 mile farther E. When the reefs are plainly marked by discoloration, vessels with local knowledge can pass between a reef with a depth of 5.5m, 1.25 miles NNE of Tanjung Mausambi, and a shallower and larger reef farther E.

Anchorage.—Anchorage may be obtained by vessels with local knowledge, in a depth of 37m, mud, 0.3 mile SE of Tanjung Mausambi.

6.43 Teluk Dondo (Dondo Bay) (8˚29'S., 121˚53'E.) is the wide and open bight which lies between Ngalu Bu and Tanjung Batuboga. The former point must not be approached closer than 1 mile due to the reef in its vicinity, Dondo village lies 5 miles E of Ngalu Bu.

Vessels can anchor, in a depth of 46m, mud, to the W of the village about 0.3 mile offshore.

Tanjung Batuboga (8˚26'S., 121˚57'E.) is the rugged N extremity of a grass-covered rocky peninsula. The largest of two small islets which stand off the point has a few trees on its summit. The coastal reef extends 0.25 mile off these islets and has some prominent above-water rocks at its seaward end.

Anchorage.—Anchorage can be taken, in a depth of 73m, with local knowledge, in a small inlet 0.5 mile S of Tanjung Batuboga.

Tanjung Batumanuk (8˚26'S., 122˚02'E.) is the outer end of a bold, high, grass-covered promontory. A reef, with a depth of 6.7m, lies 0.25 mile WNW from the point.

A foul bay lies between this point and Tanjung Nanga Delan, about 7 miles SE.

Ili Kimang (Kimangboleng) (8˚37'S., 122˚07'E.), a prominent flat summit 1,446m high, stands at the E end of a high range of mountains which back this coast.

Pulau Sukur (8˚07'S., 122˚08'E.), lying 20 miles NNE of Tanjung Batumanuk, has a conspicuous summit 264m high on its NE side. In the SW part of the island there is a hill, 86m high, and N of this hill Pulau Sukur is low and flat. A rock, with a lone tree, stands close off the E shore of the island.

A narrow ridge, with depths of 26 to 47m, extends about 0.75 mile N from the W part of the island. Here vessels with local knowledge may take anchorage 0.75 mile N of the 86m high hill.

Pasir Layaran (Angelica Bank) (7˚46'S., 122˚18'E.), an atoll plainly marked by discoloration lying 22 mile NE of Pulau Sukur, is divided into two basins.

The reef dividing the lagoon into two parts, runs in a WNW and opposite direction and has some very conspicuous, large, drying brown rocks in the middle. Some drying patches lie on the outer edge of the outside reef.

Anchorage.—Anchorage can be taken by small vessels with local knowledge in depths of 44 to 60m by passing over the reefs close NE of the sand cay on the W extremity of the atoll in the W basin. A radar conspicuous wreck was reported on the NW corner of the reef.

Teluk Maumere

6.44 Teluk Maumere (8˚35'S., 122˚18'E.), entered between **Tanjung Titir** (8˚36'S., 122˚13'E.) and **Tanjung Pogong** (8˚37'S., 122˚20'E.), 7.25 miles to the E, is exposed to NW winds. The shores of the bay are mostly low and sandy, and backed by a broad plain extending some distance inland. The coastal reef is narrow, but in places detached reefs lie 0.5 mile offshore.

Caution.—During the months of June, July, and August strong winds lasting many days sweep down from between the mountains that back Teluk Maumere.

All of the known dangers are contained within the 200m curve, which lies up to 0.75 mile offshore. The approaches to Maumere Road are clear, but a number of reefs lie on either side of the approach to Geliting Road close E. There is a break in the coastal reef off Maumere, but the bottom rises very steeply.

6.45 Maumere (8˚37'S., 122˚13'E.) (World Port Index No. 51320), the seat of a government official, is a small agriculture export center and is frequented by small inter-island vessels. The port consists of a 60m long pier. Berth No. 1, with a depth of 6m alongside, can accommodate vessels up to 450 dwt, with a maximum length of 45m and a maximum draft of 4m. Berth No. 2, with a depth of 8m alongside, can accommodate vessels up to 3,500 dwt, with a maximum length of 70m and a maximum draft of 7m. A stranded wreck lies close off the head of the pier.

Anchorage.—Anchorage may be obtained in a depth of 30m, mud and sand, 91m off Maumere where the bottom rising steeply. Several small lighters are available to handle cargo at the anchorage. Geliting, 5 miles E, has no facilities for handling vessels.

Between **Tanjung Pogong** (8˚37'S., 122˚20'E.), 3 miles NE of Geliting, and **Tanjung Darat** (8˚30'S., 122˚29'E.), about 11.5 miles NE, the low coast is mostly tree-covered. The latter point is low, but close inland the terrain rises to four hills, the N hill being covered with reeds and a few trees. Small inlets with villages at their heads, indent the SE and E parts of this section of coast.

Pulau Besar (8˚28'S., 122˚22'E.), Pulau Damhilah, and Pangah Batang lie close together on a shoal plateau, which is separated from the rounded peninsula forming Tanjung Darat, by Selat Pangabatang, a deep, clear strait. Pulau Besar is high, steep, and wooded with some villages on its slopes. Two small islets lie close off the SE end of the island.

Detached reefs are reported to lie up to 2 miles E of this end of the island.

Pulau Dambilah (8˚28'S., 122˚26'E.) is irregular, hilly, and 219m high. Pulau Parmahan with a settlement on it, lies close N of this island.

Pangah Batang (8˚29'S., 122˚28'E.), a small islet with a settlement on it, lies SE of Pulau Dambilah at the SE end of the shoal plateau.

Pulau Babi (8˚26'S., 122˚30'E.), lying in the NE approach to Selat Pangabatang, is 351m high, wooded, steep, and reef-fringed.

Pulau Pamana-besar (8˚22'S., 122˚18'E.) and Pulau Pamana-kecil stand close together on the same reef, 4.75 miles NW of Pulau Besar. The 200m curve lies close to the edge of the reef surrounding the islands.

Gosong Boni (8˚22'S., 122˚14'E.), 2.25 miles SW of Pulau Pamana-besar, is an atoll which dries in places with depths of 37 to 84m, white clay, inside the lagoon. An opening 0.15 mile wide on the E side of the atoll leads into the lagoon. The S side of the atoll is marked by a light.

The coast between Tanjung Darat and Tanjung Bela, about 17 miles ENE, is irregular and for the most part steep-to. The Nanga Gite, the principal river in the NE part of Flores discharges through a broad valley about 4.5 miles NE of Tanjung Darat.

Anchorage can be taken W of the river mouth, about 0.2 mile offshore, in depths of 37 to 55m, mud and sand.

Tanjung Watu Wulan (8˚24'S., 122˚36'E.), 9 miles NE of Tanjung Darat, and Tanjung Bokan, about 1.75 miles further NE, are both high and rocky points and should not be approached within 0.75 mile to avoid the coastal reef.

6.46 Teluk Waiprung (8˚21'S., 122˚46'E.), a small bay, provides anchorage in depths of 37 to 73m in its central part about 0.35 mile offshore. The bottom is steep and irregular.

The coast between Tanjung Bela and Tanjung Batoe Pajoeng, about 8.25 miles N, is indented by Teluk Hading, a deep and spacious bay. The S shore is bordered by high, steep, mountain land. Gunung Kumarodo, with two high rounded summits of almost equal height, stands near the head of Teluk Hading.

Gunung Nubi (8˚07'S., 122˚51'E.), on the N side of the bay, has two summits separated by a shallow saddle. The N and highest peak rises to a height of 747m.

The bay is very deep and clear except for some small detached reefs lying close offshore. The 200m curve follows the trend of the coast about 0.5 mile offshore in places.

Small vessels can anchor NW of a reef-fringed inlet in the NE corner of the bay in a depth of 46m, 0.15 mile off the coastal reef.

Tanjung Batoe Pajoeng (Tanjung Watupayung) (8˚14'S., 122˚44'E.) is low and tree-covered. The coast between this point and Tanjung Kopondie, about 13 miles NE, is well cultivated and has a few scattered villages.

Small vessels with local knowledge can anchor very close to shore on either side of Tanjung Gedong, a high, rocky, small peninsula, about 1.5 miles WSW of Tanjung Kopondei. There are depths of 46 to 55m, but swinging room is limited.

Tanjung Kopondei (Flores Head) (8˚04'S., 122˚52'E.) is a high, steep promontory with its E side bordered by a bare, rocky wall, dropping almost perpendicularly into the sea. A prominent flat rock lies close off the point. Magnetic disturbances have been reported off the point.

Straits and Islands between Flores and Pulau Lomblen

6.47 Kepulauan Solor (8˚29'S., 123˚21'E.), consisting of Pulau Adonara, Pulau Solor, and Pulau Lomblen belongs to the residency of Timor and are well populated. Agriculture is the principal industry of the islands because of the very fertile soil. Numerous coconut plantations are scattered throughout the islands.

The W side of Pulau Adonara and Pulau Solor are separated from the E side of Flores by Selat Flores, which is variable in width and clear of dangers.

Selat Larantuka (Larantuka Narrows), the N entrance of Selat Flores, lies between the E end of Flores and the SW side of Pulau Adonara, and has a minimum width of 0.2 mile between the 20m curves.

Selat Lewotobi, the S entrance of Selat Flores, separates the SW side of Pulau Solor from the SE end of Flores. This entrance has a width of 1.75 miles and is deep and clear.

Selat Boleng separates the NE end of Pulau Adonara from the NW end of Pulau Lomblen. Selat Lamakera separates the E end of Pulau Solor from the SW side of Pulau Lomblen. These straits are deep and clear, but exposed to seas and swells. Anchorage is impracticable in Selat Boleng.

Pulau Komba (7˚48'S., 123˚35'E.), 26 miles N of the N coast of Pulau Lomblen, is about 2 miles in diameter with an active volcano, 748m high, in its S part. The island serves as an excellent landmark for vessels approaching Selat Flores or Selat Boleng from the N. It was reported to be a good radar target at 40 miles.

6.48 Nusa Belang (Pulau Serbete) (8˚09'S., 123˚01'E.), a small oblong-shaped islet 8.5 miles NW of Pulau Adonara, is surrounded by a reef which extends 1.75 miles ESE and 1 mile NW. It partly dries at low water during April and November. A light is shown near the W end of the reef. Two sand banks lie on this reef. The E bank, near the edge of the reef, is reported no longer visible above water.

Tides—Currents.—The tides in all the main straits in this area are mixed, but are predominately of a semidiurnal nature. The lowest level is reached in April and November.

The horizontal tidal movement in Selat Flores is of a semidiurnal nature with the current turning somewhere about the time of the moon's transit, and from 6 to 8 hours later.

From 2 to 6 hours after the moon's transit, the S current is very strong with the maximum velocity occurring during the 5th or 6th hour. The N current is strongest from 4 hours before the moon's transit to about the time of transit.

The greatest velocity occurs about 3 to 4 days after full and changes. The S current may then attain a rate of 8 to 11 knots, and the N current a rate of 6 knots. The least velocity occurs about 3 to 4 days after the moon's quarter phases, when both N and S currents attain a maximum rate of 3.5 knots. Only very weak tidal currents are found in the wide part of the strait.

The current in Selat Larantuka sets N about 1 hour after the rising and setting of the moon, the S current 6 hours later. Slack water, especially during springs, is of short duration.

Strong currents run through Selat Larantuka and low-powered vessels are advised not to navigate this strait.

Other vessels must use great caution.

The N current in Selat Lewotobi begins 1 hour after the rising and setting of the new moon. The maximum rate is 5 knots and is strongest between **Nuha Lobetobi** (8˚36'S., 122˚51'E.) and the coast of Flores.

In Selat Solor the tidal currents set E on the rising tide and W on the falling tide, at a rate of 1 to 1.5 knots. The direction and strength of this current is greatly affected by the currents in Selat Flores, Selat Boleng, and Selat Lamakera at that time.

In Selat Boleng and Selat Lamakera the horizontal tidal movement is of a semidiurnal nature and can be very strong. Limited observations indicate that the NE current in Selat Boleng can be expected to occur from 2 to 3 hours before to 2 to 3 hours after the moon's passage, and usually earlier in Selat Lamakera.

The SW current commences from 3 to 4 hours after the moon's transit to 9 to 10 hours after transit. The tidal currents are strongest at the narrow N entrance and near the S entrance. During springs, the current could possibly attain a rate of 7 knots. A rate of 5.5 knots has been observed 2 days after springs.

In Selat Lamakera the tidal currents are very strong. A maximum rate of 7 knots has been reported. Limited observations indicate that the NE current occurs from 2 to 3 hours before to 2 to 3 hours after the transit of the moon.

The SW current occurs from 3 to 4 hours after to 9 to 10 hours after transit.

Directions.—Vessels approaching Selat Larantuka (Larantuka Narrows) from the N should bring **Tanjung Serbete** (8˚19'S., 123˚01'E.) in range with **Tanjung Udang** (8˚20'S., 123˚01'E.), bearing 204˚. When the church at **Wureh** (Wuri) (8˚18'S., 123˚02'E.) bears 114˚, the course should be altered more to the S and a mid-channel course steered through the narrows into the wide part of Selat Flores. Approaching from the S, vessels should have little difficulty as many good landmarks exist.

6.49 Pulau Adonara (8˚09'S., 123˚12'E.), a large and mountainous island, forms the E side of Selat Larantuka.

Between **Tanjung Sanganyiwutun** (8˚14'S., 123˚09'E.), the NW projection of the island, and Tanjung Horongwutun, 3 miles to the E, the coast forms an open, reef-fringed, foul

bight. The former point consists of a low ridge extending some distance offshore and rises almost perpendicularly from the sea.

Teluk Sagu, a small reef-fringed bay, is entered between **Tanjung Saguwutun** (8˚14'S., 123˚13'E.) and Tanjung Koli Kedehwutun, about 1.3 miles E. The bay provides good shelter to small vessels. Sagu, a village, stands along the SW shore and can be identified by a stone building with a zinc roof. A flagstaff stands in front of the building and a conspicuous shed stands to the E. A white stone pyramid stands at the head of the bay. A rounded hill rises SW of the pyramid.

Several detached shoal patches with depths of 5.5 to 9m lie between 0.75 mile E and 1.75 miles ENE of Tanjung Saguwutun. Several other shoal patches, with depths of 3.5m and less, lie in the S half of the bay.

Small vessels with local knowledge can enter the bay by steering 176˚ for the white pyramid, and anchor when Tanjung Koli Kedehwutun bears 062˚. This position has a depth of 43.9m, sand, and lies about 0.15 mile off the reefs on either side. Smaller craft can anchor farther in, according to draft.

Caution.—It was reported (1996) that the flagstaff was damaged and difficult to see and that the stone pyramid no longer existed.

Between Tanjung Koli Kedehwutun and **Tanjung Wurgobin** (8˚16'S., 123˚20'E.), about 6.5 miles ESE, the coast is fronted by reefs and dangers to a distance of 2 miles offshore. Mokko, a village built on piles over the water, stands about 1 mile W of Tanjung Wurgobin.

Pulau Watupeni (Watu Peni) (8˚14'S., 123˚19'E.) and Pulau Kroko lie about 2 miles N of Tanjung Wurgobin on an extensive reef which partly dries. On the S side of the reef there is a conspicuous drying patch of white sand.

Tanjung Wurgobin, the NE extremity of Pulau Adonara, is a low, thickly wooded point fringed with mangroves.

Ili Boleng (Boling) (8˚21'S., 123˚15'E.), an active volcano about 1,689m high with a large crater opening on its NW side, occupies the entire SE part of Pulau Adonara. It is prominent from all directions.

Selat Boleng and Selat Lamakera

6.50 Selat Boleng and Selat Lamakera provide a spacious, deep, and almost clear passage from Flores Sea to the Savu Sea (Sawu Sea), Pulau Adonara, and Pulau Solar on the W side, with Pulau Lomblen to the E. The straits are somewhat exposed to seas and swells during the latter part of October, and the months of November and December. Strong tidal currents prevail. For these reasons, Selat Flores is preferable, although Selat Larantuka, owing to its less width and stronger tidal currents, is more difficult to navigate than Selat Boleng.

Stiff SW winds prevail in Selat Boleng and Selat Lamakera, from the latter half of October through the months of November and December.

Selat Boleng (8˚17'S., 123˚21'E.) is the W side of the strait is formed by the E coast of Pulau Adonara, between **Tanjung Wurgobin** (8˚16'S., 123˚20'E.) and **Tanjung Watuwoko** (8˚23'S., 123˚17'E.), 8 miles SSW. A village, Pasar Waiwuri, stands 2.5 miles SW of Tanjung Wurgobin, and between them the coast is reef-fringed and wooded. A sandy beach is found between Pasar Waiwuri and Tanjung Deriwutun, a little over 3 miles S.

From Tanjung Deriwutun, the coast to Tanjung Watuwoko about 2.5 miles S, consists of rocky points with off-lying rocks and small islets with sandy beaches between them.

The low, narrow peninsula that forms the E side of the entrance of Selat Boleng is fringed by a drying reef on its channel side. **Tanjung Wajau** (8˚15'S., 123˚25'E.), the NE entrance point to Selat Boleng, 5 miles NE of **Tanjung Tuwak** (Tanjung Tuak) (8˚18'S., 123˚21'E.), is formed by a spur from an isolated hill 150m high, 1 mile S of the point. A light is situated on the point.

The coast between Tanjung Waiau and Tanjung Tuwak is low and covered with mangroves, with irregular sandy beaches. A reef which almost dries, extends up to 0.6 mile from this stretch of coast.

Teluk Lebaleba (Lewoleba One) (8˚20'S., 123˚25'E.), entered between Tanjung Tuwak and **Tanjung Waiwewang** (Tanjung Waiwowang) (8˚22'S., 123˚23'E.), has moderate depths and is largely clear of dangers. Between **Tanjung Geleko** (8˚21'S., 123˚27'E.), which can be identified by the high trees, and Tanjung Waiwewang, 3 miles WSW, the coast is low and wooded.

Most of the dangers lie within the 20m curve which fronts the shores of the bay to a distance of 1 mile.

6.51 **Awalolong Reef** (8˚22'S., 123˚25'E.), consisting of coral sand, part of which dries at half tide, lies within the a 20m curve in the S part of the bay.

Anchorage may be obtained midway between Awalolong Reef and the reef extending from Tanjung Geleko, in a depth of 15m, sand and coral.

The NW side of **Selat Lamakera** (8˚28'S., 123˚12'E.) is formed by the S coast of Pulau Adonara between Tanjung Watuwoka, the SE extremity of the island, and **Tanjung Anaburakawutun** (8˚24'S., 123˚14'E.), 4 miles W, thence to the SE coast of Pulau Solor.

The W side of Selat Lamakera, the SE coast of Pulau Solor, between **Tanjung Mottong** (Tanjung Motong) (8˚26'S., 123˚10'E.) and Tanjung Kelette (Tanjung Kelete), about 2 miles SSW, is very steep and rocky. Between Tanjung Kelette and **Tanjung Tobi** (8˚30'S., 123˚04'E.), 5 miles SW, the coast is steep and rocky and indented by a wide bight.

The SE side of Selat Lamakera, from **Tanjung Waiwewang** (8˚22'S., 123˚23'E.) to Tanjung Lowukuma, about 4 miles SW, the coast is formed by some rocky points with low, wooded hills inland.

A mountain, about 357m high, rises 1.5 miles S of Tanjung Lowukuma which from W, appears as a wide ridge with two clumps of trees, and from N as a sharp peak.

6.52 **Tanjung Mitawutun** (8˚26'S., 123˚19'E.), a rocky point formed by a steep ridge covered with reeds, lies about 2.75 miles SW of Tanjung Lowukuma. Between Tanjung Mitanwutun and **Tanjung Waikrong** (8˚28'S., 123˚17'E.), 2.5 miles SW, the coastal reef, part of which dries, extends up to 0.5 mile offshore. This stretch of coast is wooded and rises gradually inland to a wooded mountain, about 819m high, 4.75 miles SE of Tanjung Mitanwutun.

Ili Mingar (8˚31'S., 123˚17'E.), about 1,020m high, rises 2.75 miles S of Tanjung Waikrong. Between it and the 589m

high summit on the SW extremity of Pulau Lomblen, is a low plain.

Between Tanjung Waikrong and **Tanjung Liangmah** (Tanjung Liangmeah) (8˚31'S., 123˚13'E.), a rocky point about 5 miles to the SW, the coast is sparsely wooded and fronted by a drying reef.

Tanjung Suba (8˚33'S., 123˚13'E.), the SW extremity of Pulau Lomblen and the SE entrance point of Selat Lamakera, is a steep-to point which rises to a wooded hill, 241m, 0.5 mile N of the point.

The hill is the S extremity of a ridge which rises to a steep, rocky mounting (Lama Imu), about 585m high, with two peaks 1.5 miles NNW.

Pulau Suangi (Soangi) (8˚34'S., 123˚14'E.), a little over 0.75 mile S of Tanjung Suba, is about 55m high, rocky and almost bare. There is a clear passage between Pulau Suangi and the coast of Pulau Lomblen, but the tidal currents are strong during spring tides.

Pulau Adonara—South Coast

6.53 Between **Tanjung Wotang** (8˚25'S., 123˚00'E.) and Tanjung Werang (Tanjung Werawutun), a low, prominent, wooded point 3.5 miles E, the coast is indented with small bays. In Teluk Bani Ona, the E bay, there are warm springs on the drying reef, and when covered, steam can be seen rising from them.

From Tanjung Werang (Werawutun) to 4.25 miles ENE, the coast is low and wooded, the land behind rising to the main ridge in the island which extends ENE from Tanjung Wotang. The summits of this range cannot be seen from this coast. There are occasional sandy beaches varied by rocks and trees growing down to the water's edge.

Anchorage may be obtained almost anywhere along the S coast of Pulau Adonara in depths of 27 to 55m at a convenient distance offshore.

Between **Tanjung Warangwutun** (8˚24'S., 123˚10'E.) and **Tanjung Ana-burakawutun** (8˚24'S., 123˚14'E.), 3.5 miles E, a bight is formed in the coast which is fringed by a sandy beach. Tanjung Ana-burakawutun can be identified from W or E by a ridge of black rocks extending from it, and should be given a berth of at least 0.2 mile.

From Tanjung Ana-burakawutun to **Tanjung Watuwoka** (8˚23'S., 123˚17'E.), the SE extremity of Pulau Adonara, about 3.5 miles E, the coast is backed by the wooded slopes of Ili Boleng.

Pulau Solor—North Coast

6.54 The entire N coast of Pulau Solor is sandy, stony, and interspersed with trees. Behind the coast is **Ili Watuom** (Keriwatu) (8˚28'S., 122˚59'E.), 890m high, and the range extending ENE from Ili Lewuung (Lewuung), 882m high, to Tanjung Motang (Mottong), the NE extremity of the island.

Anchorage may be obtained almost everywhere off the N coast of Pulau Solor in reported depths of about 37 to 64m.

Pamakayu (Pamakaju), a village at the head of a small bay, lies about 1 mile E of **Tanjung Kalikawutun** (8˚26'S., 122˚59'E.), the NW extremity of Pulau Solor.

Lewahajong (Lawayong) (8˚26'S., 123˚04'E.), a village lying about 1.75 miles E of Tanjung Lewokahawutun, contains the ruins of an old fort. Menanga (Mananga) village lies 1 mile farther E. This village stands on a plateau descending steeply on the E side to a narrow inlet at the head of which there is a small river which enters the sea through a cleft. The coast E of the inlet is mostly covered with reeds and rises inland to the mountain ridges.

Pelabuhan Lamakera (8˚27'S., 123˚10'E.) is situated close W of Tanjung Mottong, the NW point of Pulau Solor, Lamakera, a village, stands on a wide sandy beach W of the point. The red roof of a mosque, a flagstaff, the road leading from the beach and some graves on the point NW of the village are readily identified.

Anchorage.—Anchorage may be obtained in Pelabuhan Lamakera, out of the strength of the tidal currents, in depths of 20 to 22m, 0.2 mile offshore, N of Tanjung Motang. The 5.5m curve lies 0.1 mile off the village of Lamakera with foul ground between.

Pulau Solor—South and East Coasts

6.55 Between **Matang Wutun** (Tanjung Lawawolo) (8˚37'S., 122˚53'E.), the SW extremity of Pulau Solor and Wutun Tauk (Tanjung Tauk), 1.25 miles E, there is a sandy beach. Then to **Tanjung Samatanyi** (Samatanyiwutun) (8˚34'S., 122˚57'E.), a low, bare, rocky point with some rocks off it, 4 miles NE, the coast is steep and rocky, rising inland steeply to **Ili Berapun** (Berapun) (8˚35'S., 122˚55'E.).

From Tanjung Samatanyi to **Tanjung Lamanuk** (8˚30'S., 123˚00'E.), 5.25 miles NE, the coast is fronted by a drying reef with a sandy beach behind it.

Anchorage may be taken between Tanjung Samatanyi and **Tanjung Lianwutun** (8˚32'S., 122˚58'E.), 2.25 miles NNE, bearing in mind that the coastal reef extends some distance offshore.

Between Tanjung Lamanuk and **Tanjung Tobi** (8˚30'S., 123˚04'E.), 3.75 miles E, the coast recedes to form a bight with a long, sandy beach at its head.

Pulau Lomblen—Southeast Coast

6.56 **Atu One** (Telok Atu) (8˚33'S., 123˚15'E.) is entered close E of Tanjung Suba. There is a sandy beach along the greater part of the bay; a prominent group of black rocks lie close off the E side.

Anchorage, with shelter from the Northwest Monsoon, may be taken, in depths of 11 to 16m, in Atu One.

Tanjung Konga (Tanjung Nubi) (8˚33'S., 123˚18'E.) lies 4.5 miles E of Tanjung Suba and rises steeply to 91m high. Atawai One (Telok Atawai) is entered between Tanjung Konga and **Tanjung Beloppo** (8˚34'S., 123˚21'E.), 3.5 miles ESE. The W shore, which has a sandy beach fronted by a narrow reef, rises to Ili Mingar (Mingar). At the head of the bay there is a sandy beach with several villages nearby.

Ili Labalekang (Lamararap) (8˚33'S., 123˚23'E.), about 1,644m high, rises 2 miles NE of Tanjung Beloppo. This mountain, which is prominent when seen from NW or SE, shows a sharp summit.

Tanjung Wolo Wutun (8˚35'S., 123˚24'E.), the S extremity of Pulau Lomblen, is formed by the long ridge from Ili

Labalekang which ends in a narrow plateau rising sharply out of the sea to 37m high.

Labala One (Labala Bay) (8˚33'S., 123˚29'E.) is entered between Tanjung Lolowutun, about 2 miles ENE of Tanjung Wolo Wutun, and Tanjung Atande (Tanjung Atadei), 7 miles E. The bay is entirely surrounded by high mountains which descend fairly steeply to the shores of the bay.

Anchorage.—Because of the great depths, anchorage can be taken in the two inlets on either side of **Tanjung Lewowutun** (8˚32'S., 123˚28'E.) near the W end of the head of the bay. Anchorage may be taken in the W inlet, in a depth of 46m, coarse sand and stones, 0.75 mile WSW of Tanjung Lewowutun.

During November and December, with the prevailing SW winds, this is the best anchorage and landing is easier. Also, anchorage may be taken off the sandy beach E of **Labala** (8˚31'S., 123˚29'E.) in a depth of 44m, mud and sand, 0.4 mile SE of the flagstaff at Labala, 0.15 mile offshore.

Between Tanjung Atande and Tanjung Penutun, formed by a rocky spur from the mountains inland, 2 miles NE, there is a sandy beach fronting the central part of this stretch of coast.

Three volcanic islets have been reported within a radius of 3 miles from Tanjung Penutun. In 1974 and 1993, volcanic activity was experienced. Mariners should give this area a wide berth.

From Tanjung Penutun to **Tanjung Paugora** (Tanjung Pan Gorawutun) (8˚30'S., 123˚35'E.), 2.75 miles N, the coast is fronted by groups of above-water rocks lying close offshore.

A prominent mountain, about 1,063m high, stands 1.5 miles SW of Tanjung Paugora.

The E side of the mountain is almost vertical, and when seen from NE shows four sharp peaks. Volcanic activity was reported on the E side of the mountain.

6.57 **Waiteba One** (8˚37'S., 123˚38'E.) is entered between Tanjung Paugora and Batularang Wutun (Tanjung Belu Galeh), a steep, wooded point formed by a spur from the mountains inland, 7 miles NE. The bay is backed by steep mountains, but there are no prominent summits. The depths in Waiteba One are considerable, and the bottom slopes steeply near the shore.

Anchorage may be taken by vessels with local knowledge in the N part of the bay S of Tanjung Tepiwutun in about 51m, sand, about 0.2 mile offshore.

Gelugala Wutun (Tanjung Komiwutun) (8˚26'S., 123˚41'E.), a prominent steep, wooded point formed by a spur from the mountains inland, lies 1.5 miles E of Batularang Wutun. There is a prominent tree on Gelugala Wutun. Foul ground, on which there are some groups of above-water rocks, extends 0.3 mile offshore in places between these points.

From Gelugala Wutun to **Tanjung Nanga Lebang** (8˚24'S., 123˚42'E.), 2.5 miles NE, the coast is rocky. A mountain, 587m high, rises 1.75 miles NW of Tanjung Nanga Lebang.

Atanila (Ata Nila) (8˚19'S., 123˚45'E.), the only large village on the coast of Pulau Lomblen between Gelugala Wutun and the NE extremity of the island, stands about 6 miles NNE of Tanjung Nanga Lebang.

Anchorage may be taken by vessels with local knowledge off Atanila.

6.58 **Melang Wutun** (Tanjung Belkodi) (8˚17'S., 123˚47'E.) lies about 2.75 miles NE of Atanila. The coast between is low, wooded and fringed by a narrow reef. Between Melang Wutun and **Tanjung Wapue** (Tanjung Batu Merah) (8˚17'S., 123˚50'E.), 3 miles E, there is a bay with a sandy beach fringed by a reef; inland there are low, wooded hills.

Tides—Currents.—The bottom in the bay between Melang Wutun and Tanjung Wapue is not steep and vessels lie out of the strong tidal currents setting along this coast. The maximum rate observed at the anchorage was 2 knots, generally setting in a NE direction as there is usually an eddy here when there is a S current in the adjacent strait.

Anchorage.—Anchorage may be taken by vessels with local knowledge in a depth of 64m, sand, in the bay between Melang Wutun and Tanjung Wapue.

Tanjung Bao Belewang (8˚17'S., 123˚52'E.) is a low, wooded point 1.75 miles ENE of Tanjung Wapue. A rock, covered with vegetation, lies close off Tanjung Bao Belewang.

From Tanjung Bao Belewang to **Tanjung Leur** (8˚15'S., 123˚55'E.), the NE extremity of Pulau Lomblen, the coast is low with a few wooded hills lying some distance inland.

Pulau Lomblen—North Coast

6.59 Between **Tanjung Wai Au** (8˚15'S., 123˚25'E.), the NW extremity of Pulau Lomblen, and Tanjung Munuwutun, 1.75 miles SE, the coast forms a bay entirely obstructed by reefs. The shore is fronted by mangroves.

Tanjung Munuwutun (Tanjung Munu) (8˚16'S., 123˚26'E.) is a prominent rocky point with white, vertical cliffs, and is the extremity of a hilly, wooded ridge. Between Tanjung Munuwutun and Lewobela, 2 miles E, the mangroves cease and the coast is formed by a sandy beach.

Anchorage.—Anchorage may be taken 0.2 mile offshore of Lewobela, with Tanjung Wai Au in line with the S end of **Pulau Watupeni** (8˚14'S., 123˚19'E.), bearing 282˚ astern, in depths of 42 to 55m, coral. It is essential that vessels anchor exactly on this alignment, as a small ridge with moderate depths extends from a rocky point immediately N of the village. The bottom is fairly steep and the ridge is narrow.

Ili Lewotolo (Lewotolo) (8˚16'S., 123˚30'E.), about 1,450m high, 2 miles E of Lewobela, is an active volcano with smoke and sulphur continually rising from it. The mountain has a broad summit, the highest part being on the SE side, which is covered with ashes and shows some yellowish-green strips.

Between Lewobela and **Tanjung Watumanuk** (8˚14'S., 123˚31'E.), 3.5 miles NE, the coast is steep and rocky, and then to **Tanjung Horegala** (Tanjung Horegalawutun) (8˚15'S., 123˚34'E.), 2.5 miles E, there is a low, flat strip of land fronted by a broad sandy beach.

The bay between Tanjung Horegala and **Bajak Wutun** (Tanjung Bachatanwutun) (8˚13'S., 123˚36'E.), a low, flat, rocky point with few trees 3 miles NE, is divided into 2 parts by Niera Peninsula on its E side. Lewolein (Lewaling), a village, stands 4.5 miles SSE of Bajak Wutun.

Lewolein Laleng, on the E side of the outer part of the bay, is entered between Bajak Wutun (Tanjung Bachatanwutun) and Tanjung Nuhanera (Tanjung Pukawutun), the NW extremity of Neira Peninsula, 4.5 miles SSW.

Anchorage.—Anchorage may be taken during the Southeast Monsoon off Lewolein, in a depth of 37m, 0.2 mile W of the village.

6.60 Waienga One, entered between **Tanjung Bogowutun** (8˚17'S., 123˚33'E.) and Tanjung Nuhanera, a little over 1.75 miles E, is clear of dangers except in the SW part where the coastal reef is more pronounced and there are some detached dangers close to the shore. Waienga One affords good shelter in both monsoons.

From abreast the village, 3 miles SSW of Tanjung Bogowutun, a drying tongue extends in a S direction and is extended farther S by a small reef. There is a good but confined anchorage W of the drying tongue. On the S shore of the bay anchorage may be obtained off **Hadakewa** (Pasar Hadakewa) (8˚22'S., 123˚33'E.) in depths of 37 to 46m, 0.4 mile offshore.

The coast of the hilly peninsula E of Lewolein Laleng is readily distinguished from both W or E.

The peninsula, covered with reeds and occasional small groups of trees, is a prominent part of this coast. Tanjung Menapawutun, the NE extremity of the peninsula and the W entrance point to Balaurin Laleng (Telok Balurin), is a steep point lying 3.25 miles E of Bajak Wutun (Tanjung Bachatanwutun).

Balaurin Laleng is of little importance as the depths in the greater part of the bay are too deep for anchorage. The only anchorage is in the SW part of the bay.

Anchorage.—Small vessels may anchor 0.2 mile ENE of **Tanjung Parakawutun** (8˚15'S., 123˚39'E.), 1.25 miles S of Tanjung Menapawutun, in a depth of 27m, mud. An above-water sand cay lies on the S end of a drying reef, 1.5 miles ESE of Tanjung Parakawutun. Vessels approaching this anchorage between the reefs should navigate by eye and soundings.

The coast between **Tanjung Uho** (8˚13'S., 123˚42'E.), which is marked by a light, and Tanjung Pau, 5 miles NE, is mostly formed by ridges descending from the mountains S.

Moderately strong tidal currents set around Tanjung Pau, but elsewhere along the N coast of Pulau Lomblen the tidal currents are weak.

Between **Tanjung Pau** (8˚11'S., 123˚46'E.) and Tanjung Leur (Tanjung Leoer), a little over 10 miles SE, occasional rocky spurs descend to the sea with the last 2.5 miles stretch, an uninterrupted sandy beach backed by trees with low hills inland.

Selat Alor

6.61 **Selat Alor** (Straat Alor) (8˚20'S., 123˚50'E.), between the N part of Pulau Lomblen on the NW side and Pulau Pantar (Pantar) on the SE side, is sometimes used by vessels during passage between Australia and Japan.

Selat Alor has not been surveyed outside the coastal 200m curve. In recent years, deep draft ore carriers passing between Australia and Japan have used this strait, and the least depth reported was 150m located in the main fairway, 2.5 miles W of **Tanjung Kibingi** (8˚23'S., 123˚48'E.) on the W coast of **Pulau Rusa** (Roesa) (8˚23'S., 123˚49'E.).

This area is subject to intense volcanic activity, and the possibility of underwater eruptions leading to great depth changes cannot be excluded. The least known depth in the SE approach is an 8m patch midway between Pulau Rusa and Pulau Kambing (Kambing), 2.5 miles ESE.

On the NW side of Selat Alor, **Ili Ujolewung** (Kedang) (8˚13'S., 123˚47'E.) 1,553m high, forms an excellent landmark.

On the SE side of Selat Alor, a 444m high plateau on the SW extremity of Pulau Pantar is prominent from S or N, and when seen from the Savu Sea appears as an island.

Tides—Currents.—In Selat Alor, the tidal currents can sometimes be very powerful and are of a semidiurnal nature; they follow the direction of the strait. During the Southeast Monsoon, the SW current is stronger and remains longer than the NE currents. It was recorded that the SW current prevailed from 2 to 9 hours after the moon's transit, and the NE current for the remainder. During the Northwest Monsoon, the NE current is probably stronger and remains longer than the SW current.

Spring tide appears to fall 2 to 3 days after the full moon and new moon, and neaps 2 to 3 days after the quarters. Currents during spring tides may average 5 to 6 knots.

In the N part of the strait the strength of the current is considerably less than in the S part, except close off Tanjung Leur, where a current of 5 knots was observed. In the narrows between Pulau Pantar and Pulau Marisa, a current of 8 knots was recorded.

Tidal rips and eddies have been reported midway between Pulau Rusa and Pulau Lomblen, and between **Pulau Lapan** (8˚14'S., 124˚02'E.) and Tanjung Leur.

6.62 **Pulau Lapang** (Lapan) (8˚14'S., 124˚02'E.) and Pulau Batang (Batang), 1.75 miles apart, lie in the middle of the N approach to Selat Alor. Pulau Lapang, marked by a light on its NW extremity, is a low island with a prominent tree on its W side. A drying reef, with an above water sand cay on its NW extremity, extends 2.5 miles NNE from the N extremity of Pulau Lapang. Eastward, Pulau Batang is about 258m high, light green in color, and easily identified. Its W and E extremities are low and from a distance the island appears like a needle.

Pulau Rusa, in the middle of the SW entrance to Selat Alor, can be easily identified from the S and lies 8.5 miles ENE of **Gelugala Wutun** (Tanjung Komiwutun) (8˚26'S., 123˚41'E.). Watu Balu, a prominent rocky islet, 27m high and covered with vegetation, lies 0.5 mile off the W coast of Pulau Rusa.

Pulau Marisa, lying 4 miles E of the NE side of Pulau Rusa, rises to a flat summit, 193m high. Pulau Marisa fronts the coast of Pulau Pantar, separated by a narrow channel suitable only for small craft.

Pulau Kambing, about 98m high on its NE part, lies 2.5 miles SE of Pulau Rusa. The island is fairly low with a rocky coast, occasionally interrupted by sandy beaches.

Selat Ambeang, which lies between Pulau Kambing and **Tanjung Soyang** (Tanjung Sojang) (8˚27'S., 123˚55'E.), the SW extremity of Pulau Pantar (Pantar), 1.5 miles ESE, can be used by vessels approaching Selat Alor from the SE.

Tidal currents in Selat Ambeang are strong and irregular.

The SE side of Selat Alor between Tanjung Soyang, a high rocky point, and Tanjung Oleh Matang, a rocky point, 3 miles NNE, the coast is low and covered with mangroves rising inland to the mountain, Wili.

Anchorage may be taken by vessels with local knowledge in a depth of 20m, with just sufficient room to swing, in Teluk Wolu (Woloe), an inlet in the coastal reef about 1.75 miles S of Tanjung Oleh Matang.

Directions.—Entering Teluk Wolu at low water presents no difficulty, as the coastal reef is then dry. At high water, steer for the entrance to a river at the head of the inlet where there is a small prominent patch of trees, bearing 080˚.

Between Tanjung Oleh Matang and Kayian (Kajian), a village 1.5 miles NNE, the coast is similar to that S of Tanjung Oleh Matang. From Kayian to Nuha Wutun (Noeha Wutun), 6.5 miles NE, the coast is low and covered with mangroves. Several villages lie between the two points. Inland, the land rises to a 936m high mountain, 3.5 miles S of Nuha Wutun.

Pulau Pantar—North Part of Northwest Coast

6.63 **Teluk Blang Merang** (8˚20'S., 124˚07'E.) is entered between Tanjung Nuha and **Tanjung Moang** (8˚18'S., 124˚10'E.), a rocky point 6.5 miles E. It indents the coast for 5 miles and terminates in an inner bay, which may be entered through a 0.15 mile wide opening between the coral reefs.

The village of Blangmerang (Blang Merang), where the chief administrator of the S part of the island resides, stands on the W side of the bay, 4 miles SSE of Nuha Wutun.

Anchorage.—Anchorage may be taken by vessels with local knowledge in a depth of 39m, mud and sand, in the inner bay.

Directions.—When the reefs are visible, there is no difficulty entering the inner bay. The E side of Pulau Kura (Koera), an island in the inner bay S of Blangmerang, in range with the summit of Gunung Topaki (Dlaki Dlama), at the S extremity of the island when not hidden by clouds, bearing 178˚, leads between the reefs on either side of the entrance to the inner bay, then to the anchorage. Sometimes the edges of the coastal reefs are marked by beacons placed by the local inhabitants.

Kabir (8˚15'S., 124˚13'E.), the most important village in Pulau Pantar, lies on a narrow plain 3.5 miles NE of Tanjung Moang. The village is easily identified from seaward by some houses on the beach.

The coastal reef extends 0.2 mile offshore S and N of Kabir, but off the village the reef is very narrow. A below-water reef extends 0.8 mile N from a position 0.8 mile SW of Kabir. The basin off the village is entered from N through a passage 0.2 mile wide between the N end of the below-water reef and the coastal reef E. The only danger in the basin is a 4.9m patch lying 0.3 mile W of the village. There is a also a deep passage 0.1 mile from its N end.

Anchorage.—Anchorage may be taken by vessels with local knowledge in a depth of 46m in the basin of Kabir.

Directions.—Steer 158˚ for a buoy which marks the outer end of the coastal reef on the E side of the entrance to the basin off Kabir. Then pass W of the buoy and steer 180˚ for the anchorage.

From Kabir to **Tanjung Dola** (8˚12'S., 124˚15'E.), 4.5 miles NNE, and then 1.5 miles farther NNE, the coast is almost entirely covered with mangroves occasionally interrupted by a sandy beach, and fringed by a steep-to drying reef. **Tanjung Muna** (8˚11'S., 124˚19'E.), a low point, stands about 4.25 miles ENE of Tanjung Dola, and is the NE extremity of the island.

Pulau Pantar—South Coast

6.64 Between **Tanjung Soyang** (8˚27'S., 123˚55'E.) and a prominent point 78m high, 1.75 miles SE, the coast is rock-fringed, and rises inland to the mountain Wili.

Watu Ile, a rocky islet, lies close off the prominent point. **Tanjung Ikangkutong** (8˚27'S., 123˚57'E.), 0.5 mile ENE of Watu Ile, forms the NW entrance point to a large bay. This bay has great depths except on the E side where two banks extend from it. Another bay lies between **Tanjung Delaki** (Tanjung Boda) (8˚33'S., 124˚04'E.), the S extremity of the island, and **Tanjung Debi** (8˚27'S., 124˚02'E.), about 5.75 miles N.

A prominent double peak, about 938m high, rises 1.25 miles NE of Tanjung Delaki. Gunung Topaki (Dlaki Dlama), an active volcano, about 1,365m high, the highest summit in Pulau Pantar, rises 2 miles farther NE.

Gunung Topak, is steep on its SW side, but on its NE side a thickly wooded ridge extends 2.5 miles NE terminating in a mountain about 810m high. Between Tanjung Delaki and **Tanjung Botaamin** (Tanjung Bota Amin) (8˚33'S., 124˚07'E.), a prominent rocky point, 3.5 miles E, the coast is steep and rocky.

Selat Pantar

Selat Pantar (Straat Pantar) (8˚20'S., 124˚20'E.), lying between Pulau Pantar and Pulau Alor, about 5 miles E, is little used by international traffic.

It is clear, as the islands within the strait rise steeply out of the water. The strait is easily recognized from the N by the high islands of Pulau Pura (Poera) and Pulau Reta, and from the S by Pulau Treweg (Treweg).

The best channel appears to be between the islands in the N part of the strait and the coast of Pulau Alor, and on either side of Pulau Treweg.

Anchorage off the E coast of Pulau Pantar is not recommended; **Teluk Kalabahi** (Kebola Baai) (8˚15'S., 124˚29'E.) affords the only anchorage.

A decade ago, a laden bulk carrier of 41,556 grt, with a length of 179m and a draft of 13m, steamed through Selat Pantar from N to S, passing W of Pulau Ternate and Pulau Reta, and E of Pulau Pura. During this passage, no strong tidal currents were encountered in the strait.

Tides—Currents.—The tidal currents through Selat Pantar sometimes display sharp irregularities, stronger than those in the W straits. The tidal currents are of a semidiurnal character.

During the Southeast Monsoon, the S current predominates more in strength than in duration. Sometimes during the period that the N current should be running, especially from about 2 to 3 days after the quarters, a phenomenon known as "Ajar Gundah" (uncertain water) occurs, owing to the N current being unable to overcome the Southeast Monsoon current.

During the Northwest Monsoon, which appears to have little influence on the currents, the rate of the current was observed not to exceed 4 knots in either direction.

Heavy tide-rips, especially with a strong tidal current, are found between **Pulau Pura** (8˚18'S., 124˚21'E.) and the entrance to Teluk Kalabahi on the W coast of Pulau Alor.

6.65 **Pulau Ternate** (Ternate) (8˚11'S., 124˚22'E.), in the N entrance of the strait, is small, low and uninhabited.

Pulau Reta (Reta) (8˚13'S., 124˚22'E.) lies in the middle of the N end of Selat Pantar. Pulau Pura (Pura), with a high double peak, lies about 3 miles SSW of Pulau Reta.

Pulau Treweg (Treweg) (8˚29'S., 124˚17'E.), in the S entrance of the strait, is 398m high. There is a sandy beach with large detached rocks on the S side of the island.

There is a mosque with a prominent dome on the N side of Pulau Treweg.

The W side of Selat Pantar is formed by the E coast of Pulau Pantar. The steep and wooded coast, extending from **Tanjung Bota Amin** (8˚33'S., 124˚07'E.), a prominent rocky point, to **Tanjung Muna** (8˚11'S., 124˚19'E.), 25 miles NE, is occasionally broken by a rocky point. A single beach is on the SE side of Tanjung Muna.

The E side of Selat Pantar is formed by the W coast of Pulau Alor between **Tanjung Artwoli** (Tanjung Matari) (8˚08'S., 124˚29'E.), the NE entrance point of the strait, and the high coast 2 miles SW. From Tanjung Artwoli to Tanjung Kumba (Tanjung Koemba), about 10 miles SSW, the coast is low and covered with mangroves.

Pulau Kumba (Koemba) (8˚16'S., 124˚24'E.), 70m high, lies close W of Tanjung Kumba. The narrow channel between Pulau Kumba and Tanjung Kumba is unsafe because of drying rocks and strong tidal currents.

Teluk Kebola (8˚15'S., 124˚28'E.), entered between Tanjung Kumba and **Tanjung Tobikumong** (Tanjung Jalono) (8˚18'S., 124˚24'E.), 1 mile S, is deep and clear of dangers.

The shores of the outer part of the bay are steep, but at the head, the land descends to the low plain connecting the peninsula forming the NW part of Pulau Alor to the main part of the island.

A prominent mountain, 612m high, stands about 4.5 miles E of Tanjung Kumba, on the S side of the bay.

Alor Kechil, a village, stands 0.5 mile N of Tanjung Kumba and may be identified by its mosque. Between Alor Kechil and Dulolong (Doelolong), another village about 2.5 miles NE, there are three other villages.

Anchorage may be taken, in a depth of 33m, 0.1 mile offshore S of Dulolong.

6.66 **Kalabahi** (8˚12'S., 124˚31'E.) (World Port Index No. 51370), 4.5 miles ENE of Dulolong, has a landing pier for boats during midday hours. Anchorage may be taken by vessels with local knowledge off Kalabahi in a depth of 20m, sand, 0.2 mile offshore.

From **Tanjung Jalono** (Tanjung Tobikumong) (8˚18'S., 124˚24'E.) to **Tanjung Karatkuip** (Tanjung Karat Koeip) (8˚25'S., 124˚20'E.), the SW extremity of Pulau Alor, 8.5 miles SW, the coast is steep and affords no anchorage.

Tanjung Margeta (Tanjung Marget) (8˚28'S., 124˚25'E.), the S extremity of the island, lies about 5.25 miles ESE of Tanjung Karatkuip. A prominent mountain rises about 992m high, 4.25 miles N of Tanjung Margeta.

Tapal, another prominent mountain 1,036m high, stands on a ridge 8 miles NNE of Tanjung Margeta. Anchorage may be taken in a bay on the W side of Tanjung Margeta.

Pulau Alor—South Coast

6.67 Between Tanjung Margeta and **Tanjung Lisomu** (Tanjung Laisoemboe) (8˚19'S., 125˚08'E.), the SE extremity of Pulau Alor, 44 miles ENE, there are no off-lying dangers and the coast can be closely approached.

A light is shown from Tanjung Lisome, at a height of 60m.

Anchorage.—Although the bottom is steep, anchorage may be taken off most villages, by vessels with local knowledge, depths of 40 to 51m, 0.2 to 0.3 mile offshore.

Caution.—Volcanic activity has been reported (1993) in position 8˚32'S, 123˚35'E, about 10.5 miles ESE of Tanjung Margeta.

Pulau Alor—East Coast

6.68 From Tanjung Lisomu (Laisoemboe) to **Tanjung Manamoni** (8˚09'S., 125˚06'E.), 10.5 miles N, the coast is clear of dangers and can be approached fairly closely, but the tidal currents are strong and irregular.

The mouth of a river, about 1.5 miles N of Tanjung Lisomu, can be recognized by a small group of trees.

Anchorage may be taken by vessels with local knowledge, 0.15 mile off the mouth of this river in 49m, sand, with the small group of trees, bearing 270˚. This is the only anchorage off the E coast of the island.

Pulau Alor—North Coast

6.69 The mountains within the N coast of Pulau Alor are rocky and high with few noticeable summits.

The peninsula forming the NW part of the island appears separated when seen from seaward.

The coast between **Tanjung Artwoli** (Tanjung Matari) (8˚08'S., 124˚29'E.) until near Tanjung Sika, 7 miles E, is high and rocky.

A point about 1 mile E of Tanjung Artwoli is conspicuous because of its white color. A group of trees stand on the coastal reef, 2 miles W of Tanjung Sika.

Pulau Nuhabeng (Sika) (8˚07'S., 124˚37'E.), a low islet covered with shrubs, lies on the coastal reef which extends 1 mile NE from **Tanjung Sika** (8˚08'S., 124˚36'E.). **Teluk Benlelang** (8˚10'S., 124˚38'E.), entered between Tanjung Sika and **Tanjung Likuwatang** (Likiewatang) (8˚10'S., 124˚40'E.), 4 miles SE, is foul on its W side.

Elsewhere, the depths are too great for anchorage. The N coast of Pulau Alor, E of Tanjung Likuwatang, is high and steep over its greater part.

Ombai Strait

6.70 **Ombai Strait** (8˚40'S., 124˚40'E.), a wide, deep passage, lies between Pulau Alor and the NW coast of Timor.

Tides—Currents.—During the Southeast Monsoon, there is generally a current setting in a W to SW direction, and in the Northwest Monsoon, in an E to NE direction. The maximum rate of the current in the strait was 3 knots and occurred in June with a SW current. Strong tide-rips have been reported up to 15 miles NE of the NE point of Pulau Alor.

Kambing (Pulau Atauro) (8˚15'S., 125˚34'E.), lying about 22 miles E of Pulau Alor with its steep coasts, can be approached very closely. The coasts are barren and have a rugged appearance. In general, the coast is exceedingly steep-to all around, with the exception of the E coast consisting alternatively of sandy beaches and rocky points.

Anchorage may be taken by vessels with local knowledge off **Mau Meta** (8˚16'S., 125˚36'E.), in a depth of 37m, sand and stones, 0.5 mile ESE of the government official's house at Mau Meta.

Pulau Liran (8˚00'S., 125˚45'E.) lies 7 miles NE of Kambing and is a wooded mountainous island rising to 430m in its central part. A light marking the S extremity of the island, shown at an elevation of 82m.

It was reported that the coastal reef extending S from the island had shoaled considerably, and that it consisted of a steep-to bank of sand and coral, 0.5 mile wide, with rocks over which the sea breaks at LW. The bank extends 2.5 miles S of Pulau Liran, and a least depth of 3.7m with below-water rocks, was found on the bank.

Strong tide-rips frequently occur on the S end of the bank.

Karang Nautilis (7˚56'S., 125˚44'E.) lies 1.25 miles N of Pulau Liran and nearly dries. There is a clear passage between Karang Nautilis and Pulau Liran, but the N extremity of the island should be given a berth of at least 0.5 mile.

In the Southeast Monsoon, vessels with local knowledge may anchorage in a depth of 60m, sand, W of the light, 0.2 mile off the coastal reef.

Selat Liran, 1.5 miles wide, between Pulau Liran and the SW extremity of Pulau Wetar, is clear of dangers, but should not be attempted because of the strong currents. A current of 3 knots was observed.

6.71 **Pulau Wetar** (7˚49'S., 126˚14'E.) is a rugged mountainous island which rises in its W part to a summit 1,355m high, 15 miles NE of **Pibia Tutun** (8˚01'S., 125˚48'E.), the SW extremity. All coasts of Pulau Wetar are high, steep, and inhospitable; there are practically no anchorages.

The W coast of Pulau Wetar is alternately steep and sloping, becoming steeper to the N. Pulau Reong (Reong), off the NW extremity of the island, is a good landmark, and is separated from Pulau Wetar by a deep and clear channel. Strong currents are encountered at times.

The N coast of Pulau Wetar is steep and rocky almost throughout. There are numerous small bays, but few of them afford anchorage.

Nila Tutun (Nila Toetoen) (7˚33'S., 126˚37'E.), the N extremity of the island, is an extremity of a bold headland which can be identified from E or W.

The E coast of Pulau Wetar, between **Tujau Tutun** (7˚32'S., 126˚38'E.) and Hatuloi Tutun, about 12 miles ESE, has heavy swells and breakers during both monsoons. Between Hatuloi Tutun and **Iskanawatu Tutun** (7˚45'S., 126˚50'E.), the SE extremity of the island, 6 miles S, the coast is steep-to with several villages. There are strong tidal currents, eddies, and whirlpools off the coast between Hatuloi Tutun and Iskanawatu Tutun.

Between Iskanawatu Tutun and **Eden Tutun** (7˚58'S., 126˚28'E.), 25 miles SW, the coast forms a wide bight and is steep-to. There are tide rips and eddies along this part of the coast.

The S coast of Pulau Wetar can be approached closely, bearing in mind the tide rips off the SE and SW points of Pulau Wetar.

Teluk Sau (Saoe Bay) lies about 3.75 miles NW of Eden Tutun. **Ilwaki** (7˚56'S., 126˚26'E.), the principal village of Pulau Wetar, stands a short distance inland. A shed and several houses stand on the shingle beach fronting Ilwaki.

There is a sheltered anchorage in the Northwest Monsoon, and also with SE winds in a depth of 55m, 0.2 mile S of Ilwaki. This anchorage is the only good anchorage off Pulau Wetar.

The remainder of the coast, about 37 miles W to Pibia Tutun, is composed of sand and shingle beaches, alternated by rocky points, backed by mountains.

Pulau Kisar (Kisar) (8˚01'S., 127˚12'E.) lies a little over 25 miles SE of the E extremity of Pulau Wetar. The coasts, which rise steeply from the sea, consists of bare coral lime broken in places where small streams empty into the sea.

Anchorage.—Anchorage is available off the SW side of the island in an open roadstead off **Pantai Wonreli** (8˚05'S., 127˚08'E.). It may be taken in Pantai Wonreli roads in depths of from 29 to 40m, coral and stones, about 137m NW of a white pyramid on the S shore of the bight. Further offshore, the bottom is so steep that there would be danger of dragging the anchor.

Sudden squalls make this anchorage dangerous and during the Northwest Monsoon, the anchorage is unsafe and communication with the shore is broken. Tidal currents in the anchorage set NNE and SSW. During the Northwest Monsoon, landings are made at **Jawallan** (Djawallan) (8˚05'S., 127˚13'E.) on the E side of the island.

Wetar Strait

6.72 **Wetar Strait** (8˚14'S., 126˚16'E.), the wide passage between the S coast of Pulau Wetar and the N coast of Timor is used regularly by local shipping and also by vessels proceeding between Jawa and Australia, and between Singapore and Australia. Vessels on the latter two routes pass N of Pulau Adonara, Pulau Lomblen, Pulau Pantar, and Pulau Alor by following the parallel of 8˚S. Vessels on these two routes usually enter the strait from the NW by passing between Pulau Atauro (Kambing) and Pulau Liran (Liran), 7 miles NE, and depart E between Pulau Kisar and the E extremity of Timor, about 14 miles S.

There are no known dangers in Wetar Strait outside the charted 200m curve surrounding the adjacent islands.

Caution is required because of **Sumatra Shoal** (8˚07'S., 125˚57'E.), charted 13.25 miles ESE of Pulau Liran Light. The position of the shoal and the depth are doubtful, but strong discoloration and a sounding of 25m was obtained.

Currents in Wetar Strait are not well known and are probably similar to those in Ombai Strait, seldom exceeding 0.5 knot.

Timor

6.73 Timor is a large mountainous island with ranges seldom rising higher than 1,829 to 2,134m. A range of mountains lying near the middle of the island are the highest.

Fatamailau (8˚55'S., 125˚29'E.) rises to 2,920m high. These high peaks in the middle of the island are often covered with clouds. The N coast of Timor has numerous peaks which provide landmarks, but they are generally only useful during the Southeast Monsoon.

Waters along the SE coast of Timor, between the mouth of **Mota Masin** (9˚28'S., 125˚05'E.) and **Pulau Jaco** (8˚26'S., 127˚20'E.), and the adjacent sea area out to 12 miles offshore, are prohibited to all non-Indonesian vessels.

The N coast of Timor is mountainous, especially the W part between **Tanjung Parimbala** (8˚39'S., 125˚07'E.) and **Tanjung Suba** (Tanjung Soebang), 52 miles E. Here the mountains rise steeply from the sea, except for a low plain midway between these two points at Dili (Dilly), the most important place on this coast. The NE end of Timor is occupied by a fairly high, flat ridge of mountains, terminating in an almost perpendicular cliff 1 mile within **Tanjung Sevivara** (8˚23'S., 127˚18'E.), the NE extremity of Timor.

There are numerous villages along this coast, many of which contain large mission houses and churches. Some of the houses are built to resemble forts and give a picturesque appearance as well as affording good landmarks when navigating within a few miles of the coast.

Maubara (8˚37'S., 125˚12'E.), a village about 5 miles ENE of Tanjung Parimbala, can be readily distinguished from seaward by a small church and a house with high walls, standing close to the sea. The residence of the military commandant, situated on the summit of a hill, is prominent.

Tides—Currents.—Tidal currents off Maubara cause strong eddies and may cause a vessel to swing and foul its anchors.

Anchorage.—Vessels, with local knowledge, can anchor temporarily, in 49m, with a point about 1.5 miles WSW of the village in line with a rock close W of Maubara.

Tanjung Palila (Tanjung Sia Ria), 10.5 miles E of Maubara, is a high, rocky spur formed from the mountain behind it. A coastal reef, extending up to 0.5 mile offshore, begins at a point 3.5 miles E of Tanjung Palila and continues unbroken for 3.5 miles in an E direction until Tanjung Mau Duki.

Tanjung Mau Duki (8˚32'S., 125˚32'E.), a low muddy point, contains the mouth of a small river. For a distance 1 mile E of the river there is a white, sandy beach which is free of reefs.

6.74 **Dili** (Dilly) (8˚32'S., 125˚35'E.) (World Port Index No. 51390) is situated on a low plain at the head of a bay between Tanjung Mau Duki and Tanjung Fatu Cama (Tanjung Fatoe Kama), a salient point 1.75 miles SE.

Tanjung Laquebada (8˚32'S., 125˚34'E.) is the NW entrance point.

A large warehouse on the wharf, 0.4 mile SE of Tanjung Laquebada, was reported to be conspicuous from seaward.

The former Governor's palace stands close SE of the wharf. A conspicuous custom house stands 0.3 mile E of the former Governor's palace, and midway between them is a stone jetty.

The inner roadstead is sheltered by reefs which dry, extending from the shore at each end of the town, and a large detached reef between them.

A light is shown from a 17m metal framework tower on a white stone base with blue bands situated on Tanjung Laquebada at the W end of the roadstead.

A concrete wharf is 180m long with a depth of 9m alongside.

The outer anchorage for general cargo vessels lies N and NW of Tanjung Laquebada. Caution is necessary as foul ground lies in the E section of the anchorage and dangerous wrecks lie 0.7 mile WNW and 1.1 miles NE of Tanjung Laquebada.

Anchorage may also be obtained in the inner road, clear of the reefs, in a depth of 20m.

Range lights lead into the harbor. Vessels can anchor as convenient or proceed alongside the wharf. A compulsory pilot is available at Dili.

6.75 From **Tanjung Fatu Cama** (8˚32'S., 125˚36'E.) to **Tanjung Fatu Lana** (8˚29'S., 125˚51'E.), 15 miles E, the coast is fringed by an irregular reef. An above-water rock lies close to the coast, 0.5 mile W of Tanjung Fatu Lana.

Between Tanjung Fatu Lana and **Tanjung Subang** (Tanjung Subao) (8˚29'S., 125˚59'E.), 7.75 miles E, the coast rises steeply.

Manatutu (Manatoetoe) (8˚31'S., 126˚01'E.), about 3.5 miles SE of Tanjung Subang, is a fairly important place. It can easily be identified by a white church with two towers and some houses on a hill. Range lights are occasionally shown at Manatutu.

Anchorage.—Anchorage may be taken by vessels with local knowledge, in 55m, but the bottom is soft mud and the holding ground is not good.

The coast between Manatutu and **Tanjung Bigono** (8˚26'S., 126˚22'E.), 21 miles ENE, is hilly. Tanjung Bandura, about 3 miles E of Tanjung Bigono, is high and steep as is the coast between these two points, and it is a good landmark from E or W.

Baucau (Vila Salazar) (8˚27'S., 126˚30'E.), the largest town on this stretch of coast, stands 3.5 miles SSE of Tanjung Bandura, at an elevation of 319m.

Anchorage.—Anchorage may be taken by vessels with local knowledge off the roadstead leading to the town, in a depth of 40m, coral, where vessels will swing clear of the narrow coastal reef and lie well in both monsoons. A noticeable group of rocks lies close offshore, 1.75 miles W of the anchorage.

Between Baucau and **Tanjung Chater** (Ponta Chater) (8˚20'S., 127˚00'E.), about 32 miles E, the coast is fairly low, rising gradually to the mountains inland.

Anchorage can be taken off **Nova Zazara** (Koen) (8˚22'S., 127˚04'E.), a little over 4 miles SE of Tanjung Chater, by vessels with local knowledge, in a depth of 46m, stony bottom. The anchorage itself is a small natural harbor formed by an opening in the coastal reef. It is available to vessels up to 2,000 grt and offers protection during the Northwest Monsoon. The entrance is about 0.1 mile wide and is easy to approach.

From Nova Zazara, the coast extends 7 miles E to **Tanjung Hero** (Punta Hero) (8˚20'S., 127˚11'E.). The coast between Tanjung Hero and Tanjung Sevivara (Punta Sevivara), 7.5 miles SE, is fronted by steep-to cliffs.

Timor—Southeast Coast

6.76 **Caution.—**Non-Indonesian vessels are prohibited from entering waters within 12 miles of the SE coast of Timor between the meridians of 125˚ 05'E and 127˚ 21'E.

The SE coast may be approached fairly closely throughout, as there are no off-lying dangers other than **Beatrice Reefs** (10˚31'S., 123˚36'E.) in Selat Roti (Roti Strait). There are no bays or harbors which afford shelter in the Southeast Monsoon. Nearly all the rivers are inaccessible in the dry season, and even in the Northwest Monsoon there is frequently a heavy surf so that landing is difficult.

The action of the surf on the soft white rocks near the coast causes a white discoloration of the sea. Patches of this discoloration are carried by the current for miles seaward.

Pulau Jaco (Yaco) (8˚26'S., 127˚20'E.), a flat, wooded island marked by a light, lies close off Tanjung Sevivara, the E extremity of Timor.

It was reported that Pulau Jaco is a good radar target at 9 miles. Light-colored smooth water, breaking at the outer edges, was reported to extend 2.5 miles S and E from Pulau Jaco. A depth of 14.3m was reported (1997) to lie about 11 miles NE of Pulau Jaco.

Selat Jaco is a 0.3 mile wide, clear channel between the NE extremity of Timor and Pulau Jaco, which may be safely navigated by steering a mid-channel course. Tidal currents may attain 4 knots. There are whirlpools at both entrances to the strait.

The coast from Tanjung Sevivara to **Tanjung Lore** (Tanjung Soeloro) (8˚41'S., 127˚01'E.), 24 miles SW, is rocky with the last few miles fringed by a sandy beach.

Lore (Suloro) (8˚39'S., 127˚01'E.), the center of the timber trade, stands 2.25 miles N of Tanjung Lore. The landing place for the center is at a village 1.5 miles W of the point. The conspicuous house of the manager of the sawmills, elevation 12m, is situated NW of Tanjung Lore.

A channel, 0.5 mile wide, leads through the wide coastal reef to the landing place, which is sheltered in both monsoons. Two pillars near the beach, in range 350˚, lead through the middle of the channel.

Anchorage may be taken, in 18m, SSE of the pillars in range.

6.77 The coast between Tanjung Lore and **Tanjung Beaco** (Tanjung Beaso) (8˚57'S., 126˚28'E.) is hilly with high mountains inland.

Elomar (8˚45'S., 126˚46'E.), a village, stands on the shore of a small bay about 15 miles WSW of Tanjung Lore. A reef which dries, extends from the E shore but off the village there is a broad, sandy beach where good landing can be affected. Two pillars in range, bearing 026˚, lead to the anchorage in 7m.

Tanjung Roro Ai (8˚48'S., 126˚37'E.) is a high, rocky point formed by a spur from the mountain N, located 10 miles WSW of Elomar.

Aliambata (8˚47'S., 126˚36'E.), close W of Tanjung Roro Ai, can be identified by a large pyramid.

Anchorage.—Anchorage may be taken in a depth of 18m, SE of the pyramid. The depth is reported to be 37m, 0.75 mile offshore, and 16m, 0.45 mile offshore.

Tanjung Beaco, 11 miles SSW of Aliambata, is a low point. Beaco, a village, stands 1.5 miles W of Tanjung Beaco, and may be identified by the custom house and a white pillar.

Anchorage may be taken, by vessels with local knowledge, in a convenient depth off Beaco, SSW of the white pillar. In the Southeast Monsoon, there is a heavy swell.

Tanjung Luca (Tanjung Loeka), a low, marshy, reef-fringed point, lies about 10.5 miles W of Tanjung Beaco.

Two large rivers enter the sea through deltas of mangroves, 14 and 23.5 miles WSW of Tanjung Luca, the coast between being a low plain.

Tanjung Metibot (Tanjung Meti Boot) (9˚09'S., 125˚49'E.) is located 30.5 miles WSW of Tanjung Luca.

The coast between Tanjung Metibot and **Tanjung Manemara** (Tanjung Lalete) (9˚12'S., 125˚42'E.), about 7.5 miles WSW, is reef-fringed in places.

Tanjung Suai (9˚21'S., 125˚16'E.) is reef-fringed, lies about 27 miles WSW of Tanjung Manemara, and has a village on its point.

Tanjung Tafara (9˚25'S., 125˚12'E.), 5.5 miles SW of Tanjung Suai, is a low point which can be identified by some casuarino trees, and terminates in a bank of shingle.

From Tanjung Tafara to **Tanjung Wetoh** (Tanjung We Toh) (9˚38'S., 124˚53'E.), 19 miles SW, there is a slight indentation in the coast.

6.78 Tanjung Batu Merah (Tanjung Menu) (9˚52'S., 124˚45'E.) is a steep, rocky point, formed by a spur from the mountains, 19.5 miles SW of Tanjung Wetoh. A wide, low plain extends between the two. Tanjung Noiloetuke, the NE entrance point to Teluk Kalbano, lies 13 miles SW of Tanjung Batu Merah. The intervening coast consists of high cliffs on which there are remarkable red and white patches.

Teluk Kalbano (10˚02'S., 124˚33'E.) is backed by high mountains. It has a shore consisting of a steep, inclining beach of stones except in the S part, where there is a narrow coastal reef, which dries.

Kalbano (10˚02'S., 124˚32'E.), a village, stands 0.35 mile inland behind groves of palm trees on the W shore of the bay. There is a noticeable mass of rock on the beach at the N end of the palm trees.

Anchorage.—Anchorage may be taken by vessels with local knowledge, 0.3 mile E of the N end of a drying reef, in depths of 20 to 60m. There is a good landing place immediately N of the coastal reef.

The coast between Teluk Kalbano and **Tanjung Batuputih** (Tanjung Batoe Poetih) (10˚13'S., 124˚05'E.) trends 30 miles WSW. Tanjung Batuputih is a prominent, steep, white rocky cliff, 50m high and easy to identify from E. Immediately NE of Tanjung Batuputih is Teluk Noilmina (Noilmina Bay) which has a wide sandy shore over the greater part of its head.

Anchorage may be taken in the Northwest Monsoon, by vessels with local knowledge, in the W part of the bight, in depths of 5 to 9m. In the Southeast Monsoon, the shore should not be approached closely.

From Tanjung Batuputih to **Tanjung Oisina** (10˚21'S., 123˚27'E.), the SW extremity of Timor, the coast trends about 38 miles WSW. Tanjung Oisina should be given a wide berth as the sea and tide rips make steering difficult. The point is marked by a light.

Tanjung Mali (10˚22'S., 123˚36'E.), a narrow rocky point about 9.25 miles E of Tanjung Oisina, should be given a berth of 1 mile because of a shoal spit extending from it.

Timor—West Coast

6.79 Pulau Semau (10˚14'S., 123˚23'E.), a large hilly island with **Tanjung Uloimi** (10˚20'S., 123˚24'E.), its steep SE extremity, lies 3.25 miles WNW of Tanjung Oisina. The island, reef-fringed, has no remarkable summits but rises to about 189m in its N part. A light is shown 1 mile SW of Tanjung Kurong, the N extremity of the island.

6.80 Hansisi (10˚11'S., 123˚30'E.) (World Port Index No. 51420), close W of Tanjung Hansisi, the NE extremity of Pulau Semau, is a coaling station for Government vessels only. Landing can be affected at all times at the steps of a stone pier fronting the village. There was a depth of 2.1m at the steps and 3.4m alongside the pierhead.

Tides—Currents.—Tidal currents and very strong tide rips, especially off **Tanjung Upeoh** (10˚14'S., 123˚19'E.), make traffic inadvisable along the W coast of Pulau Semau.

Anchorage.—A small vessel can anchor in Hansisi Road, in a depth of 7m, S of a water tank seen between two coaling sheds.

Large vessels should not anchor in a depth of less than 33m, as the depths decrease rapidly towards the shore.

Selat Semau (10˚16'S., 123˚27'E.) lies between Pulau Semau and the SW part of the W coast of Timor, and is deep and free from dangers in the fairway. The safest course through the strait is mid-channel. Depths in the vicinity of Selat Semau has been reported to be less than charted.

Tides—Currents.—Strong currents run through the strait, but the S current does not continue as long as the N. The current is seldom stronger than 3 knots.

The W coast of Timor lies between Tanjung Oisina, the SW extremity, and **Tanjung Gumuk** (Goemoek) (9˚30'S., 123˚48'E.), the W extremity of Timor, 55 miles NNE. Irregular tidal currents and tide rips are found off nearly all the salient points, which should be given a wide berth.

Between Tanjung Oisina and **Tanjung Lelendo** (Tanjung Lelindo) (10˚14'S., 123˚29'E.), 8 miles N, the W coast should be given a wide berth as the depths outside the coastal reef are irregular, and a turbulent sea and tide rips make steering difficult.

The village of **Tenau** (10˚12'S., 123˚32'E.) is situated in the NE part of a bight, lying between Tanjung Lelendo and **Tanjung Tenau** (Tanjung Fanot) (10˚11'S., 123˚32'E.), 3.25 miles NE. Tenau is a loading place for Kupang, about 3.75 miles NE, when the seas during the Northwest Monsoon are unfavorable.

The wharf, 23m long, has 8m depth alongside. Vessels up to 123m long and 10,000 dwt can use the wharf. A light is shown at the root of the pier at Tenau. A second wharf, which is 200m long with a depth of 8m alongside, can accommodate a vessel up to 20,000 dwt.

The recommended anchorage is 0.2 mile NW of the head of the pier. Obstructions lie 0.4 mile and 0.65 mile NW of the pier. A 2.2m patch, marked by a buoy, lies 1 mile SW of the pier.

Teluk Kupang (10˚06'S., 123˚40'E.) is entered between Tanjung Tenau and **Tanjung Pakular** (Tanjung Pakoelak) (10˚02'S., 123˚35'E.), a sandy, wooded point, 9 miles NNE. Depths in the vicinity of Teluk Kupang are reported less than charted.

6.81 Kupang (10˚10'S., 123˚35'E.) (World Port Index No. 51410) consists of a 223m long concrete wharf with depths of 9m alongside and a 94m long passenger pier with depths of 5.5m alongside. A concrete pier, 55m long, is part of the seawall which extends NNW from the harbor entrance.

A light is shown from a 13m, white metal framework tower on the W entrance point of the river at Kupang. Another light is occasionally shown on the head of a pier extending from the E entrance of the river.

Anchorage.—Anchorage is available during the Southeast Monsoon, in a depth of 18m, 0.25 mile NW of the light on the W entrance of the river.

An area of foul ground lies close E of this anchorage. In the Northwest Monsoon, it is better to anchor farther out in a depth of 33m.

Between Tanjung Pakulak and **Tanjung Gumuk** (Tanjung Goemoek) (9˚30'S., 123˚48'E.), the NW extremity of Timor about 35 miles NNE, the coast is steep and rocky with an occasional sandy beach.

Because of irregular currents and tide rips off this section of coast, vessels should not approach Tanjung Gumuk within 1 mile. An explosives dumping ground lies about 21 miles NW of Tanjung Pakulak.

The NW coast of Timor, between Tanjung Gumuk and Tanjung Parimbala, 95 miles NE, is mountainous over its greater part, but occasionally broken by lower, hilly land.

6.82 Atapupu (Atapoepoe) (9˚00'S., 124˚52'E.) (World Port Index No. 51400), about 70 miles NE of Tanjung Gumuk, lies at the head of a narrow inlet in the coastal reef which projects about 0.5 mile from the shore.

The port is situated on the E side of the mouth of a river and is marked by a light. There is a narrow 137m wide but deep passage through the reef, widening out to a basin about 0.3m wide with depths of 5.8 to 14.6m forming the inner roadstead.

Anchorage.—Vessels can anchor in the inner roadstead W of the range line in 7 to 13m. Because of the restricted space it is advisable to moor.

During the Southeast Monsoon, anchorage may be obtained outside the coastal reef on the range line, in depths of 55 to 73m.

Directions.—Steer 164˚ with the white monument in range with the highest point of the E side of a prominent mountain cliff, located less than 2 miles SSE of Atapupu.

The coast between Atapupu and **Batu Gadeh** (8˚57'S., 124˚58'E.), 7.5 miles ENE, is formed by a wooded plain, fronted by mangroves, with an occasional sandy beach.

Tanjung Fatu Sue (Tanjung Fatoe Soe) (8˚52'S., 125˚00'E.) lies about 5.5 miles NNE of Batu Gadeh.

Tanjung Fatu Bero (8˚41'S., 125˚06'E.), is a rocky point 12 miles NNE. Here, the coast recedes to form a bight. It was reported that the coastal reef, for a distance of 3 miles S of Tanjung Fatu Bero, had extended about 2 miles to the W.

Tanjung Parimbala (8˚39'S., 125˚07'E.), 3.5 miles N of Tanjung Fatu Bero, is one of several rocky points of a high rounded part of the coast.

Selat Roti

6.83 This strait, lying between the S extremity of Timor and Pulau Roti, about 6.5 miles SW, is deep and clear except for a narrow coral bank 2.25 mile miles SSW of Tanjung Oisina, the SW extremity of Timor. The coral bank has a least depth of 16.5m, and it is advisable to give it a berth of 3 miles, for it has been reported that depths are less than charted.

Beatrice Reefs (10˚31'S., 123˚36'E.), about 12.5 miles SE of Tanjung Oisina, consists of two coral reefs, 2.25 miles apart, with deep water between. The E reef has a least depth of 5.5m and the W has 7.3m. They are usually recognized by their discoloration, surf, and tide rips. The S sides of the reefs are steep-to.

Tides—Currents.—The tidal currents in the strait may run with some strength, and there is frequently a turbulent sea in the E part.

Anchorage, if necessary, can be taken off the N side of either reef in 20m.

A rock with less than 1.8m depth lies about 2.5 miles N of the E reef.

Pulau Roti

6.84 **Pulau Roti** (10˚45'S., 123˚09'E.), whose NE extremity lies 6.5 miles SW of Timor across Selat Roti, is a hilly island rising near the middle of the S side of the island to a height of 429m. The island is also surrounded by a coastal reef which is fairly broad in places. Outside this reef the depths generally increase rapidly, and in some places off the S coast the 200m curve is only 0.5 mile offshore.

The E coast, between **Tanjung Pukuatu** (Tanjung Poekoeatoe) (10˚26'S., 123˚22'E.), low and sandy, and **Tanjung Piakokoli** (Tanjung Mepe) (10˚39'S., 123˚25'E.), about 14 miles S, has few landmarks.

Pulau Usu (Usu) (10˚30'S., 123˚25'E.), a hilly island, about 5.5 miles SE of Tanjung Pukuatu, is difficult to identify from the main island and is separated from it by a narrow strait.

Teluk Pepela (10˚35'S., 123˚25'E.) is entered between Tanjung Liudese, the S extremity of Pulau Usu, and **Tanjung Liakokoli** (Tanjung Batuisi) (10˚37'S., 123˚25'E.), a little over 3 miles SSE. The bay is encumbered by dangerous shoal patches and the depths are very irregular. Exercise caution when entering the bay.

Anchorage.—Anchorage may be taken in an inlet in the coastal reef on the S side of the entrance to Teluk Pepela in 24m, sheltered from W winds.

Directions.—For the approach to Teluk Pepela, steer 221˚ for **Lakimola** (10˚40'S., 123˚21'E.), 273m high, and anchor when Batu Luak, a large rock on the drying coastal reef, 1.5 miles WNW of Tanjung Liakokoli (Tanjung Batuisi) is in range with a flat hill at the head of the bay, bearing 274˚.

6.85 The coast trends 2.75 miles S from Tanjung Liakokoli to Tanjung Piakokoli, the E extremity of Pulau Roti. Then to **Tanjung Poeleh** (10˚50'S., 123˚13'E.), a low rocky point about 16 miles SW, the coast is low and rocky in places with the land rising steeply inland.

From Tanjung Pondalaun to Pulau Lai, about 10 miles WSW, the coast is high and steep with the depths too great for anchoring.

Teluk Buka (Boeka Bay), indenting the coast between **Tanjung Manulaluk** (10˚52'S., 123˚01'E.), a steep point and **Tanjung Makar** (10˚55'S., 122˚58'E.), 3.75 miles SW, is fringed on its N and W sides by a broad bank of sand and coral.

Pulau Tua (10˚53'S., 123˚03'E.), a small islet with a white stone pyramid, lies about 1.5 miles W of Tanjung Manulaluk.

Pulau Lai (10˚52'S., 123˚04'E.), an islet off the N entrance of Teluk Buka, is fringed by a drying reef. A few rocks on the S side of a large reef lie about 1 mile SW of Pulau Lai. Pulau Landu (Landoe) at its W end lies close off the S entrance of Teluk Buka.

Nusa Manuk (Manoek) (10˚55'S., 123˚00'E.) lies on a drying reef connected to Tanjung Makar. Several conspicuous low and bare islets and rocks lie on a reef extending E from Nusa Manuk. The outermost rock, about 2 miles E of the SE extremity of Nusa Manuk, is especially conspicuous.

It was reported that Nusa Manuk is a good radar target at 21 miles.

In the middle of Teluk Buka are two large drying reefs. North of these reefs is an extensive basin with anchorage in 20m, mud and sand. The entrance of this basin is about 0.3 mile wide between the N side of the E drying reef and the edge of the drying shore bank. Local knowledge is necessary.

In approaching the anchorage, proceed between the reefs extending from Nusa Manuk and the rocks on the S side of a large reef, 2 miles SE of Tanjung Manulaluk. Steer course 312˚ on the white stone pyramid standing on Pulau Tua. Change course sharply to N when the S side of the large reef SW of Pulau Lai is in range with the S point of Pulau Lai. When the S point of Pulau Lai bears 090˚ alter course quickly to 270˚, and anchor in 20m when the white stone pyramid bears 337˚.

Islands and Dangers off the West Coast

6.86 **Pulau Dana** (11˚00'S., 122˚53'E.), close S of Tanjung Bua (Tanjung Boa), is a rocky, uninhabited island. Pulau Helihana (Haliana), 1 mile NE of Pulau Dana, is a steep, rocky islet. South of Pulau Dana there is a heavy swell and a turbulent sea at all times.

Pulau Ndao (Ndao) (10˚49'S., 122˚40'E.), Pulau Nuse (Noese), and Doo all lie inside the 200m curve off the W coast of Pulau Roti. If passing between these islands from the S, it is advisable to pass E of Doo and then between Pulau Ndao and Pulau Nuse.

There is usually heavy surf on the coastal reef fringing these islands and tidal currents among these islands can reach speeds of up to 3 knots.

On the NW coast from **Tanjung Tongga** (Tanjung Tonga) (10˚47'S., 122˚49'E.) to **Baa** (10˚44'S., 123˚03'E.), a village 14.5 miles ENE, the coast is fringed by a reef which extends 1 mile offshore in places. The coast is low and covered with mangroves.

Baa Road (10˚43'S., 123˚03'E.) (World Port Index No. 51430) fronts Baa, the principal village on Pulau Roti. The roadstead is entirely open to W and NW winds. A light is shown from a white metal framework tower on the beach.

Another light is occasionally shown from the head of a pier, 0.1 mile further E.

Anchorage.—Anchorage may be taken during the Southeast Monsoon, in 20 to 26m, mud and sand, with the light structure bearing 147°, distant about 0.45 mile.

6.87 Tanjung Unggae (Tanjung Oenggae) (10°36'S., 123°12'E.), 12 miles NE of Baa, is the S entrance for Teluk Korobafo (Korobafo Bay). The N entrance is 0.8 mile farther NE, with both entrance points reef-fringed and mangrove covered, making Teluk Korobafo difficult to identify. The current in the entrance to the bay can be very strong during high tides. Because of the current in the entrance to Teluk Korobafo, it is only navigable by small vessels. Over a small part of W end of Teluk Korobafo there are depths of over 9.1m, but elsewhere it is shoal.

The coast between Teluk Korobafo and Tanjung Pukuatu, the NE extremity of Pulau Roti, is low and wooded with occasional rocky cliffs, the entire coast being fronted by a drying reef.

Pulau Sawu (Sawu) (10°31'S., 121°55'E.) lies 51 miles WNW of Pulau Roti and is a hilly island. The highest peak on the island, **Raipiga** (Rai Piga) (10°34'S., 121°48'E.), 342m high, lies about 8 miles E of **Tanjung Mesera** (Tanjung Mesara) (10°34'S., 121°41'E.), the W extremity of the island. Lights are often seen along the coasts of the island; these lights are torches used by the inhabitants of the island engaged in fishing.

The NW coast of Pulau Sawu, from Tanjung Mesera to Seba, about 10.5 miles NE, is mostly sandy with a few rocky parts.

6.88 Seba (10°29'S., 121°51'E.) (World Port Index No. 51360) is a village not easily recognized from the sea. A light is shown from Seba.

When approaching Seba during the day, a 9m high white stone pyramid standing close SW of the light structure will be sighted. The pyramid is difficult to recognize because of a white building behind it.

Anchorage.—Anchorage may be taken during the Southeast Monsoon, in a depth of 12m, mud and sand, 0.4 mile NW of the light structure. A patch which dries, lies 0.15 mile SE of this position and when approaching the anchorage the bottom rises very steeply. In the Northwest Monsoon, it is better to anchor farther out in a depth of 35m, at least 0.75 mile offshore.

North of Seba, the Kali Menia (Kali Mehia) empties into the sea about 2.75 miles WSW of **Tanjung Aimau** (10°26'S., 121°52'E.), the N point of the island. A sandy beach at the river mouth affords a good landing place. A light is shown close E of the mouth of Kali Menia.

There is a remarkable cliff formed of greyish-green masses of rock 1 mile W of **Tanjung Niuwudu** (Tanjung Nioewoedoe) (10°27'S., 122°00'E.).

Anchorage may be obtained during the Northwest Monsoon between **Tanjung Bali** (10°28'S., 122°00'E.) and **Tanjung Lie Geta** (10°33'S., 121°59'E.), but the coastal reef extends as much as 0.8 mile offshore near Tanjung Bali. During the Northwest Monsoon, anchorage may be taken by vessels with local knowledge, in a depth of 33m, SW of Tanjung Lie Geta.

The coastal reef, S of Tanjung Lie Geta, is interspersed with rock and sandy beaches with occasional rocks on the coastal reef itself.

Selat Raijua (Rai Djoea Strait) lies between Pulau Sawu and Pulau Raijua, 3.5 miles WSW, and is deep and clear of danger in the fairway.

6.89 Pulau Raijua (10°36'S., 121°39'E.), separated from Pulau Sawu by Selat Raijua, is inhabited and cultivated. There are no good anchorages off the S coast of Pulau Raijua. Anchorage may be taken during the Southeast Monsoon by vessels with local knowledge 0.5 mile N of **Tanjung Wuimahi** (10°38'S., 121°31'E.), the W extremity of Pulau Raijua, in a depth of 35m, sand and coral. This anchorage is sheltered from E winds.

A prominent sugarloaf-shaped hill, 60m high, rises 0.5 mile SW of **Tanjung Meranga** (10°36'S., 121°33'E.), the NW extremity of the island. The highest hill, lies near the middle of the island and is 165m high.

Pulau Dana (Dana) (10°50'S., 121°17'E.), 18 miles SW of Pulau Raijua, is a small island partly covered with low timber and uninhabited. The W and highest part of the island rises to a rocky plateau, 36m high. A prominent rock, 34m high, lies on the N side of the island.

Anchorage may be taken by vessels with local knowledge, in a depth of 29m, N of the prominent high rock.

Islands Lying North of the East and Central Parts of Flores

6.90 Pulau Kauna (Kaoena) (7°26'S., 122°05'E.), over 22 miles NW of Pasir Layaran, is a wooded coral islet and uninhabited. A small sandflat lies on the drying SE edge of the fringing coastal reef.

Pulau Kakabia (Kakabia) (6°54'S., 122°13'E.), 32 miles NNE of Pulau Kauna, is high, rocky, wooded, and uninhabited. Numerous seabirds and rats live on the island, and some of the trees and rocks are white with guano. The island is fringed by a drying coral reef which extends 1.25 miles ESE, and contains a deep inaccessible basin. A detached reef which dries lies off the NE side of the reef, and is separated it by a narrow, deep channel.

Pulau Madu (Madoe) (7°30'S., 121°46'E.), 17 miles WSW of Pulau Kauna, has several detached reefs lying near the coastal reef inside the 200m curve.

Pulau Kalaotoa (Kalao Toa) (7°23'S., 121°48'E.), 3 miles N of Pulau Madu, are separated by a deep passage. Pulau Kalaotoa is the most important and densely populated island of this group. The village **Gorau Upa** (7°25'S., 121°45'E.) is situated on the SW side.

Anchorage.—Anchorage may be taken by vessels with local knowledge off Gorau Upa, close N of a 6.7m patch SW of the village. Anchorage may also be taken close to the coastal reef extending from the SE, E, and N sides of Pulau Kalaotoa.

Taka Lambaena (7°16'S., 121°40'E.), an extensive steep-to reef, lies 3.5 miles NW of Pulau Kalaotoa from which it is separated by a deep channel.

Pulau Karompa Lompo (Karompa Lompo) (7°17'S., 121°46'E.) and Pulau Karompa Cadi (Karompa Tjadi) lie on the SE and NE end of Taka Lambaena.

Taka Lambaena extends 16 miles WNW from Pulau Karompa Lompo, and close within its extremity is a prominent above-water rock. A steep-to reef and a small coral islet lie, 1 and 2.5 miles NW; respectively, of the W extremity of Tara Lambaena.

6.91 Kaju Pangang (7˚28'S., 121˚25'E.), 18.5 miles W of Pulau Mudu, consists of two small rocky islets covered with vegetation, and visible 10 miles in clear weather lying on the S side of a reef.

Taka Bassi (Marianne Reef) (7˚31'S., 121˚13'E.), a drying reef, lies 11.5 miles WSW of Kaju Pangang. Some detached dangers, which are scarcely visible by discoloration, lie within the 200m curve S and SE of Taka Bassi.

Kepulauan Bone Rate, a large group of coral islands under formation, occupy a large area between the N extremity of the reef Taka Lambaena, and **Ujung Apatana** (Tanjung Apatana) (6˚30'S., 120˚29'E.), the S extremity of Pulau Salayar (Pulau Selayar). These islands are mostly uninhabited and are only visited regularly by local trading vessels. The ordinary navigation routes lie far outside the archipelago.

The passages across and along the barrier reef inside the 200m curve can be navigated by sight. The large reefs are nearly always marked by discoloration when covered, but such is not the case with the smaller reefs. The difference in appearance at HW, when all the reefs are practically covered, and at LW when the reefs are dry, is very conspicuous.

In the channels between these islands the tidal current runs N with the rising tide and S with the falling tide.

6.92 Pulau Bone Rate (Bone Rate) (7˚21'S., 121˚07'E.), 9 miles NW of Taka Bassi (Marianne Reef), is wooded with coconut palms to the S and has the highest of three flat hills near the N end of the island. Bone Rate Light is shown from the SW side of the island.

Pulau Kalao (7˚18'S., 120˚56'E.) lies W of Pulau Bone Rate and separated by a deep channel 1.75 miles wide.

The elevation of the island is higher at its E and W extremities than in the middle.

Anchorage may be taken off Beru, a village on the E side of the island, in a depth of 69m. In the Northwest Monsoon, vessels lie here safer than off Pulau Bone Rate.

Pulau Tanajampea (Tana Djampea) (7˚08'S., 120˚46'E.), lies about 8.75 miles N of the W extremity of Pulau Kalao. The island is high, rugged, and broken on the W side, off which lie many smaller islands.

On the bank which extends 12 miles W from the W coast of Pulau Tanajampea, there are a number of small heads of coral. They are usually marked by discoloration, although the water is so clear that the bottom can plainly be seen at a depth of 9.1m. Vessels passing the bank should keep outside the 200m curve.

Tides—Currents.—During the Southeast Monsoon, when passing W of this bank, a W current attaining a rate of 2.25 knots has been observed.

Taka Kapalle (7˚07'S., 120˚25'E.) are extensive reefs, which show discoloration, at the SW corner of the bank. The least depth on this reef is 3.7m.

6.93 Karangsane (Sane Sane Reef) (6˚58'S., 120˚27'E.), NW of the bank and outside the 200m curve, is a reef of sand, coral, and stones which partly dries, and has two above-water sand cays on its NE side.

Three islets lie on the bank between **Pulau Kayuadi** (Kajoe Adi) (6˚48'S., 120˚48'E.) and the N coast of Pulau Tanajampea.

Pulau Kauna (Taoena) (6˚53'S., 120˚47'E.) lies on the E side of a reef, 1 mile S of Pulau Kayuadi, and is a wooded small island.

Pulau Panjang (Pandjang) (6˚58'S., 120˚47'E.), 4.5 miles S of Pulau Kayuadi, is a small sand island covered with coconut palms lying on the SE end of a drying reef. There are strong eddies 2 miles NNE of the island.

Pulau Batu (Batoe) (7˚02'S., 120˚45'E.), with a rock close S of it, lies 4 miles SSW of Pulau Panjang.

Pulau Pulasi (Poelasi) (6˚41'S., 120˚26'E.), about 20 miles NNW of Pulau Tanajampea, and Pulau Tambolongang (Tambulongang), 1.5 miles N of Pulau Pulasi, lie on the E side of an extensive bank, steep-to near the 200m curve, consisting of sand, coral, and rocks.

Shoal patches on this bank can easily be seen as the water is so clear that the bottom can easily be seen at a depth of 20m. The water over the N part of the bank is reported to be discolored.

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